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ILLINOIS MEDICAL JOURNAL

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

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Editorial

THE NEW YEAR CALL

A New Year awaits the kindliest use to which men may put this measured period of time.

And so for all the readers, advertisers, patrons and subscribers of this periodical, the ILLINOIS MEDICAL JOURNAL and its editors extend the greeting

"A Happy New Year."

Centuries ago the Persian Poet, Omar Khayyam wrote "Now the New Year reviving old desires," which was the poet's way of saying that the new year awakens in the heart of the average man a longing to do better by himself and his work and his people than he has done before. One of the best points about human nature is the never stilled hunger for embellishment of effort that may make us appear to be something brighter and more desirable in the eyes of our fellowmen. This is legitimate compensation for the ever human tendency to err.

A current magazine phrases the hypothesis from the converse viewpoint, remarking "This is the last number of the old year. The best part of such a time is that it enables us to look back a year and see if progress has been made. Magazine progress is of many kinds; it can show in appearance, or in the increased circles of its friends; or in the greater variety, depth and quality of the published material."

To those who have followed the efforts of the ILLINOIS MEDICAL JOURNAL through the years since its founding, this published creed will appear as nothing new. For just such ideals have been upheld by this magazine. For the published material of interest to physicians, surgeons and affiliated professions the world over, the magazine has its courteous and learned contributors to thank. For the support that makes possible the publication of the journal credit must be given those advertisers who are wise enough to "know a good thing when they see it," and

to the readers who are blessed with similar prescience when it comes to scanning advertising columns. As the ILLINOIS MEDICAL JOURNAL stands back of its advertisers the readers needs less knowledge of this specific sort than does the advertiser.

Probably during the past year there have been disappointments as to what this journal might have done. The mass of contributed material must be edited and selected so as to do the greatest good for the largest number. That a degree of efficiency in this respect is attained must be true as is evidenced by the large national and international subscription list.

If the ILLINOIS MEDICAL JOURNAL might ask for any gift from its friends during the next twelvemonth it would be for

1. Greater interest in the organization of the medical profession into a choate unit to work for the interests of the mother science, and therefore, for that of humanity at large.

2. Unified action against the insidious encroachments of socialism into our democracy through pretense at medical progress.

3. Unified action against the creation of a bureaucracy, and the passing the useless and handicapping and interfering legislation and the lay dictation of medicine.

4. A greater participation in civic affairs by the medical profession with the physician returning to his earlier position as an active factor in public government.

These are not selfish wishes on the part of the ILLINOIS MEDICAL JOURNAL. Rather are they inspired by the desire to see the profession, when this coming year shall have ended, at least ten years ahead in progress, gauging by the decade just passed.

As for the gifts that the Journal would give to its friends and patrons, these would be the same that the Journal would have. Possession of these desires accomplished would mean so much not only to the mother science, but to every doctor and to every individual in the United States that nothing better might be asked for. When the medical profession shall have been given the rights it should have, the world will be a long stride on the way towards the millennium. After all "Health is wealth," or at least the foundation of a prosperity far more to be envied than any fabled, yet discretionary Midas touch. The editor of this Journal feels that within certain boundaries he can speak as a prophet. Years ago he forecasted just such inhibitions as have made life a burden for the doctor this past ten years, thanks to uninspired legislation that makes the practice of medicine twice as burdensome as it has any right to be.

Tasks of the old years cannot be cleaned out of the way until the medical profession joins its strength and like the battering-ram of old makes its power felt at the gateway of the sayso of a great democracy. That gateway is the ballot-box. The physician may hate politics but it is one of the inevitables, that like scarlet fever he must either control or be controlled by the disease.

With this old burden freshly faced, and with hopes for its conquest during the next twelve months will the public at large and the profession in particular accept from the ILLINOIS MEDICAL JOURNAL the best of good wishes for a rich, a worthwhile, and an uplifting new year.

1925——————1926

The old year has gone, the lights are out; nothing remains of the fast and furious fires of the year except a handful of cold gray ashes blown by the winds of heaven to the four corners of the earth. The recording angel has made up the record, he has written the last word on the last line, has turned the page and sealed it. Is there a blot on the record; it will remain. Does the record show mistakes; they are permanent. Nothing will undo the past, no human effort will change one line, one word, one letter. We must stand or fall by the record. Is that record what you wish it to be? Would you change it if you could? Would you expunge a part of it, or make any additions, if it were in your power to do so?

Last night the joyous peals of the bells ushered in a new year, a year of bright expectations and strong resolutions. The page is spotless and awaits the inscription. Will there be a blot on this page too? Will the experience of the past guide us and teach us how to keep the record free of all blemishes? If we have made mistakes in the past (and who has not made them) let us resolve to avoid them during the coming year. Let us be loyal to each other and loyal to our society; let us be better men as well as better doctors, let us live up to the expectations of the people of our community. Let us keep ever in

our mind the principle so beautifully expressed by Tennyson,

"Man am I grown, a man's work must I do.
Follow the deer? Follow the Christ, the King,
Live pure, speak true, right wrong, follow the King.
Else, wherefore born?"

WITH APOLOGIES TO NO OTHER JOURNAL OR MAGAZINE

The ILLINOIS MEDICAL JOURNAL was one of the first publications to make an issue of State Medicine, the over centralization of government in Washington, with the consequent bureaucratic control of executive powers, and of state subsidies as well as the mountainous masses of law that have been loaded on the backs of the American people. We have always held that bureaucracy and over centralization is a curse wherever inaugurated and that in the management of medical affairs they are fatal. The campaign to counteract this vicious trend of the times is becoming general. It begins to look as if relief might result.

Thinking men of the country are applying themselves along these lines. Among the hundreds of statesmen and economists devoting profound study to a way out from this red tape hobble are President Coolidge, former Vice-President Thomas H. Marshall; former Governor Lowden of Illinois; Governor A. C. Ritchie of Maryland; Nicholas Murray Butler, President of Columbia University; David Kinley, President of the University of Illinois; President Goodnow of Johns Hopkins University; Senators Albert J. Beveridge of Indiana, Senator Moses of Massachusetts, Senator William H. King of Utah, Senator James Reed of Missouri, Senator William E. Borah, of Idaho; Senator James W. Wadsworth and others, many of the same people who as far back as twenty years ago and as recently as five years ago, accused us of tilting at windmills, advocate now what we suggested them. That is the abolition of useless, imperfect and incongruous laws; the re-establishment of the home; local self-government, and a return to the first principles of this democracy—back to the "rule of the people, by the people and for the people."

ANNOUNCEMENT

The Tenth Annual Congress on Internal Medicine will be held at Detroit and Ann Arbor, week of February 22-27, 1926.

The Congress is devoted to amphitheatre, bedside and clinical laboratory demonstrations as well as to symposia dealing with modern phases of internal medicine. Distinguished guests from abroad, Canada and the leading clinics of the United States will occupy prominent places on the program. Four days will be devoted to the work at Detroit and on one day, the society will be the guest of the University of Michigan at the newly opened eleven hundred bed University Hospital.

All physicians, who are interested in internal medicine and who are members in good standing of their local and national societies are cordially invited to attend the Congress.

Hotel headquarters will be at the Book-Cadillac in Detroit. Information regarding reduced railroad rates, program, hotel accommodations, etc., may be secured from the Secretary-General.

C. G. JENNINGS, M. D., President,
American Congress on Internal Medicine,
Detroit, Mich.

FRANK SMITHIES, M. D., Sec'y. Gen'l.
920 N. Michigan Avenue,
Chicago, Ill.

LAYMEN IN CHARGE OF HEALTH DEPARTMENTS IS A MISCHIEVOUS DECEPTION OF THE PUBLIC

LAY PERSONS ARE NOT CAPABLE OF DIRECTING WORK OF PHYSICIANS. HEALTH OFFICIALS SHOULD FIRST BE PHYSICIANS. RESOLUTIONS OF THE CHICAGO MEDICAL SOCIETY

Whereas, The American Public Health Association at its Annual Meeting in St. Louis, in October, 1925, listened to an address by one of its members, favoring a new doctor in each community where a Health Officer is needed, to be known as a Doctor of Public Health, and

Whereas, Several institutions of learning have introduced courses in Public Health whereby a layman as well as a physician, may be instructed and in a comparatively short time qualify as a

Doctor of Public Health, (D. P. H.) and be allowed to advise, qualify and practice preventive medicine, and

Whereas, In all probability a Bill to license a so-called D. P. H., will be introduced into the next Session of the State Legislature of Illinois, and

Whereas, The Chicago Medical Society believes that all Health Officials should first be physicians, (M. D.), who have the proper knowledge of the sciences concerned in Public Health, and that such knowledge cannot be gained by any layman in two or three years, and

Whereas, Such an arrangement of a layman being a Health Official, places a double expense on the community, since it is necessary for the community to then procure the service of an M. D., in addition to a layman, and

Whereas, The State confers on an M. D. the right to practice medicine and surgery in all its branches, while the special licensing of a D. P. H. would be special legislation tending to take from an M. D. that right.

Therefore Be It Resolved, That the Chicago Medical Society believes all positions of trust pertaining to Public Health in any community should be held by physicians, (M. D.) and not by laymen holding D. P. H. licenses, and

Be It Further Resolved, That the Chicago Medical Society views with displeasure any move on the part of the American Public Health Association, which may express a desire to replace physicians as Health Officials by laymen with D. P. H. licenses, and

Be It Further Resolved, That a copy of this resolution be sent to the American Public Health Association; to all those institutions of learning where courses in Public Health are given with a view to conferring a D. P. H. Degree; and to every State Medical Society with a request that their component County Societies be made acquainted with the proposed activities of a Public Health Association, whose President is a layman.

Motion was carried that this Resolution be adopted.

On motion the meeting adjourned.

FRANK R. MORTON, Secretary,
Chicago Medical Society.

DR. HENRY WILSON CHAPMAN

Dr. Henry Wilson Chapman, born, 1850, in Cincinnati, was graduated from Washington University Medical School, St. Louis, 1877, and practiced in White Hall till his death, December 13, 1925, from cerebral hemorrhage.

He organized the Medical and Surgical Society of Western Illinois in 1882 and was its first secretary. This became a district society of which he was president for several years. Later it corresponded with the sixth councilor district. He was a member of Greene County and Illinois State Medical Societies and a Fellow A. M. A.

ENSWORTH MEDICAL COLLEGE ALUMNI

The Alumni Association of the Ensworth Medical College was formed in Kansas City in October, with a membership of forty-three. Dr. Charles Geiger of St. Joseph was elected president of the association. The writer is very anxious to have enrolled all the graduates of Northwestern, Central and Ensworth Medical Colleges. The dues are $1.00 per year. We hope to have 100 in attendance at the meeting next fall. All graduates of the three colleges mentioned above are urged to send in their names to the secretary for enrollment at once.

CHARLES WOOD FASSETT, M. D., Secretary,
115 East Thirty-first Street,
Kansas City, Missouri.

ALL PHYSICIANS ENTITLED TO TREAT PATIENTS IN THE MUNICIPAL SANITARIUM

The Illinois City Tuberculosis Act, as amended at the Forty-eighth session of the Illinois Legislature, 1913 reads as follows: Article Two. "All reputable physicians shall have equal privilege in treating patients in said sanitarium."

THE BIRTH CONTROL PROBLEM IS ONLY ONE ASPECT OF THE LARGER POPULATION QUESTION

LIFE INSURANCE STATISTICIAN ATTACKS BIRTH CONTROLISTS. WHEN EMOTIONALISM MEETS REASON

Lewis I. Dublin, Ph.D., statistician of the Metropolitan Life Insurance Company told the recent International Birth Control Conference

that he disagreed with them. Some of his reasons in brief were:

"Because your propaganda until yesterday has been based essentially on an emotional reaction and not on a scientific analysis.

"Larger families among poverty stricken, however deplorable, do not justify a nationwide program of broadcasting contraceptive information without reserve.

"Your effort will simply replace an evil of which we are fully aware and which we all deplore with even greater evils lurking less obviously in the background. There is need for caution; for you are playing with fire. Mistakes in population policy are more easily made than rectified.

"The birth control problem is only one aspect of the larger population question, and will never be settled satisfactorily except as the larger issue is solved.

"I cannot consider the underlying causes for the decline in our birth rate except to point to the very obvious influence of the widespread knowledge of contraceptive methods. One would imagine from your literature that such methods were a recent discovery which, if only applied generally, would release a long-suffering world from all its troubles. But, this is clearly a misconception.

"There is evidence on all sides that birth control practices are in vogue to an enormous degree in the United States. Every doctor, every nurse, every druggist, and every social worker, will, I believe, admit as much. In no other way can we explain the falling birth rate of the country in recent years.

"Knowledge of contraceptive methods is more widely practiced here than in any other country of the world, except Germany and Austria, where the aftermath of the war has taken all desire and incentive for living out of the hearts of the masses. Holland, which you consider the exemplar of voluntary parenthood, shows a birth rate of 26 per 1,000, as compared with 23 in the United States.

"You have won much sympathy for your program through the assumption that it works in the direction of social and economic improvement of the poor. But obviously economic battles cannot be fought by other than economic weapons.

"You do not solve the worker's problems by encouraging him to lose his greatest and noblest possession, his children. On the contrary, you help to maintain the status quo by accepting present economic maladjustments without a struggle.

"Have you not a moral obligation to assure those whom you wish to help that the procedures you sponsor are at once effective and harmless? The best medical opinion informs me that you are, in fact, not prepared to make any such guarantees." . . . "Such information as is available indicates clearly that there is still a large element of uncertainty in the suggested procedures.

"You have, heretofore, limited yourselves almost entirely to arousing sympathy for those who have suffered from over-large families. Today, you might very well take up the other side of the picture and help arouse public sentiment in favor of fairly good-sized families among the rank and file of normal people.

"What is most vitally needed today is more light on the problem of population and not wider dissemination of questionable contraceptive practices through such agencies as your current publications.

"Your magazines, sold promiscuously on street corners, are especially offensive and alienate the good-will of many thoughtful people."

HENRY FORD OPPOSED TO STATE AID

Henry Ford has a decidedly definite opinion upon the growing habit of relying upon the government for doles, grants, subsidies and aids.

"The bad habit of relying on Government," he says in a current issue of the *Dearborn Independent*, "for aid was first fixed among industries and then began among individuals. Yet the best businesses grew without special government aid, and so will the best citizenship.

"The genius of the American people is self-reliance. Diminish that and you diminish their government. The old principles that made us great—self-direction and self-help—are still contemporary and valid. Youth never had so great an opportunity as today. Where there was one opportunity fifty years ago, there are hundreds now. There are a thousand times more per capita opportunity than in colonial times. We have always created more niches than we could fill—that is the genius of our nation. Never was there less need of government help, never more doors for self-help, than now."

OVER $135,000,000 IN CHARITY SERVICE GIVEN ANNUALLY BY PHYSICIANS

Our National Doctor's Bill the Public's Debt

It has been computed by conservative physicians that 40 per cent of their service is gratuitous either through voluntary service or through clients failing to pay the doctor's bill.

A cursory survey of the gratuitous service given by physicians through medical institutions in the Greater City of New York, based upon the number of "free hospital days" aggregates $16,000,000 annually.

This figure by no means indicates the total bill that the city-controlled and private hospitals would have to pay if the doctor, like other professional men, demanded and received payment for each and every service performed.

It is based upon returns from but 107 of the 140 odd medical and surgical serving institutions giving some portion of charity service.

Evaluating the physician's service nationally upon the hypothesis that outside New York City but a pro rata service in quantity is given equal to 50%, and assuming that each "Hospital Days" service was paid for at the rate of $3.00 per day, the nation's bill due the doctor would be more than $135,000,000 annually.

A survey made within the City of New York (by no means complete because many of the hospitals had not their figures at hand for this quick computation) shows the following:

Institutions in New York are roughly grouped into five classes:

Group one and two are the city-controlled hospitals —those operated and maintained by the City Government—and are composed of fifteen institutions, ten of which are under the management of the Department of Public Welfare; the others, known as Bellevue and Allied hospitals, include five institutions.

The third group are those supported in part by the Catholic Charities, of which there are twenty-two institutions. The fourth group is the United Hospital Fund group, which is financed annually, partly through drives, representing fifty-six institutions. The Independent Hospitals into which class are gathered all those institutions not included in the above four groups compose the fifth group. There are forty odd institutions in this latter group, of which number fourteen have made returns for the purposes of this survey, the other four groups being complete in their returns.

These groups show the following:

	Hospitals.	Free days
Department of Public Welfare group	10	1,879,871
Bellevue and Allied Hospitals.....	5	859,232
Total City controlled hospitals.....		2,739,103
Catholic group	22	322,610
United Hospital Fund group.....	56	1,563,658
Independents	14	395,131
Total 107		5,020,502

The total displayed above, 5,020,502 "free hospital days" represents the number of free days service given to free charity patients in the city's hospitals in a year.

Going a step further it is no exaggeration to say that each patient is visited at least three times in each "hospital day" by a physician who receives no compensation whatsoever.

If we compute each visit of the physician as being worth a dollar, we find that the bill would be $15,061,506 per annum.

This includes the services of the consulting and outside attending physicians and surgeons, together with the services of the internes, but it is all medical or surgical service.

In taking three dollars as the equivalent of service of the consulting, attending and interne physicians, we feel we are placing the compensation at a price so far below normal for the compensation for a similar service outside the institutions as to prevent criticism or cavil of any kind.

For, when it is considered that these include the best medical and surgical brains in the country, the most expert men in the profession, who, in some instances are known to charge fees as high as $5,000 for an operation, and others who charge as low as $25 for a consultation, and then again those who charge no more than $3 per visit to outside patients, we feel that we have been almost unfair in the computation of the doctor's bill; but we will let it stand at that figure to show the prodigious sum that annually would be due the doctor if, as I have stated before, he demanded and secured even this small measure of pay for his services in public institutions.

NOW FOR THE NATIONAL BILL

As New York City represents about one-eighteenth of the total population of the United States, the national bill would, therefore, be eighteen times that of the City of New York, but we will not use that figure, because it might be argued by some that the measure of service given throughout the rest of the country is not in the same proportion either in quantity or quality.

Then, there are those who may even claim that the service outside Greater New York by physicians, through similar institutions, is greater proportionately both as to quantity and value.

The figure arrived at here is not intended as one of discourtesy to any city or section in any of the states, it is merely taken to arrive at an evaluation of the national service of the physician—as a basis, if you please, for a more thorough evaluation of his services, and with the hope that a national census may be taken which will be thorough, complete and satisfying.

Therefore we will set down as our premise that the balance of the country gives pro rata a service of but 50% of that given by the City of New York. This abnormally low computation shows that the physicians national bill would total $135,553,554.

If we place the total number of registered physicians at 165,000 nationally and divide this into the figures above attained, we find that each and every physician in the United States should be credited with $821 gratuitous service every year.

Of course, every physician is not connected with a hospital or similar institution giving gratuitous service to the poor, and this figure is attained, therefore, by making a spread of the entire bill over the 165,000 registered physicians.

Then, again, it must be remembered that this sum does not in any sense measure the free service of which no accounting ever has been made or ever can be made—of the charity or free service that the physicians give to the poor whom they meet in their daily practice.

Just what this bill would amount to God only knows, because the physician never keeps account of it, and if you happen to mention it to him he will laugh it off, saying "Oh, that's for the good of the service—for the good of mankind."

But there is another element that enters into this question of service for which the physician never is paid, and this is the most baneful element, the unpaid bills of those who are well able financially to meet their obligations to their physician.

Every family doctor has a number of these every year upon his books, and if the facts and figures were recorded, of the money lost to the physicians in this

way, it would stagger one and give to each a twinge of conscience.

And when one considers that the measure of the physician's service is intimate, personal and means relieving the individual of pain, suffering, the saving of a limb, aye, the saving of a life perhaps, this negligence takes on an aspect that is indescribable.

With this situation well in mind, can there be any question as to why so many physicians eke out meager existences, and that many—the majority—die without estate, and that many become public charges because of financial distress?

And with the costs of living rising like the tides, is it any wonder that so many of them are engulfed and have to enter almshouses, or that those capable of it have to seek employment in other lines in order to maintain themselves decently!

THE MEN OF PURE SCIENCE

Again, there is an aspect to the situation which presents a problem that never can or will be solved in the approach that is being made to solve problems of similar kind these days; that is the problem of the man of pure science—the man who devotes himself to the science of medicine and employs his time digging and delving in the laboratory to seek some panacea for the existent ailments of life, or who, built in more heroic mould, submits himself to the torture of disease through inoculation, that he may record the symptoms, and that his brother physicians may record the progress of disease in him, so that mankind may be benefited as the result of his sacrifices and studies.

To evaluate this service of the physician is something beyond the power of figures, or dollars or cents, because there is the jeopardy of life always, and who can say as to the value of a life given in this manner?

The next element is that of the man who through pure service to the public is stricken down, who has to leave his bed at the call of the patient at unseemly hours; who answes call after call in this manner, totally unmindful of his own physical well-being, knowing only that some one is suffering and that his duty is to relieve that suffering. When this man becomes aged, penniless and is incapacitated from going the daily round of the old family doctor, should there not be some place to which he may go; some place to which his eyes may turn in hope and solace?

And then as to the good wife, who has shared his burden through life, and whose warnings and entreaties have fallen upon deaf ears, the only call being heard being that of service—what is to become of her? Is she to be sent to the poorhouse over one hill, and he to be sent to another over the other hill, and thus these twain parted at a time of life when the affectionate companionship of years should solace their few remaining days?

Is this to be their lot?

What is to become of the vaunted ethics, the service and the pride of the medical profession if this be permitted?

To take care of one's own is a natural impulse; to take care of others is called charity, but to take care of those who sacrifice their health, their strength, their years, their service, in behalf of the public or in behalf of their profession—this calls not for charity, it is a call to duty.

Today there is reported a dearth of physicians throughout the country. There are hundreds of communities where one doctor has to serve many such.

The poor compensation, bad debts, unseemly hours, the personal hazards to health, limb and life do not compensate a physician these days as against other professions, so doctors are becoming fewer proportionately in the rural districts.

And this is no wonder, because according to the American Medical Association, from figures printed sometime ago, $1,000 was the average earnings of a doctor.

And, of course, it is beyond question as to a man being able to support himself, and make his daily rounds on such a basis of compensation—much less to maintain a horse and carriage, or an automobile, and a family and a home thereon.

All these problems have been revolving in the minds of certain forward-looking physicans for several years with the result that a little experiment or adventure, was begun up in the hills of Caneadea, New York, where there was established a trial unit of a home for aged and superannuated or ailing physicians and their wives. For four years this institution has been doing its mission of mercy and love, and now the calls upon it are so heavy that it seems due the medical profession to found a home, national in scope and service; a place where tranquility will be theirs during their last few years of life.

And as planned by these physicians, it serves a double mercy in that it does not separate the physician from his good wife and life partner at this crucial time in their existence. Provision is made for both at the home, and the fact that it has worked out successfully adds flowers to the benison.

That this national home had not been thought of before, nor had not been actually started before, is due to the diffidence of the profession in its personal affairs—it did not wish to lay bare to public scrutiny that so many within the profession are needy, or may be in actual want.

But when the facts were laid before some of our leading and far-seeing citizens the reply was instant that something must be done, and that they would sponsor a movement to raise funds for the national home.

Here are gathered a few of the words of encouragement and God-speed which have created this enterprise, from the pens of leading citizens.

If after reading them you feel that you would like to help in this great movement by your personal gift, please forward the same by check, drawn to the order of the Physicians' Home, Inc., and mail it to Dr. Albert G. Weed, Treasurer, 22nd floor, Times Building, Broadway and 42nd Street, New York City.

THE DOCTOR'S RECOMPENSE

A little village in southern Ohio has been blessed for forty-seven years by the services of an old-fashioned family doctor. Through the seasons, for nearly half a century he has healed the sick, helped the needy and taken an interest in the lives of its patients and townsfolk—in which he has greatly resembled many another family doctor of that fine type.

He seems to have been almost unique in one regard, however. He kept books but he never sent a bill to any patient for any professional services. The patients paid if, when and what they could. Said this strange man:

"Anybody can make money. I have found my recompense in the satisfaction of service."

The other evening, in the village town hall, a host of grateful patients gave a little surprise party for the doctor. He was presented with a purse said to contain "part of the fees the doctor had forgotten." The purse contained over $1,000. And out at the curb in front of the building he was presented with a fine new automobile, the gift of "grateful patients."

It is a beautiful story, from every aspect. The world needs more such examples of faithful, unselfish service. And it very greatly needs more such examples of sincere gratitude, joyously expressed.—*Johnson City, Staff News.*

WE WISH THE AMERICAN COLLEGE OF SURGEONS WOULD ENGAGE A WISE PUBLICITY DIRECTOR

We do wish the American College of Surgeons would engage a wise publicity director. Every time these estimable surgeons hold a meeting the press-clipping agencies deliver a mess of mud-slinging that has besmeared all the other members of a great humanitarian profession. The recent Philadelphia meeting was no exception, and too much dirty linen was washed in public. Of course, all destructive criticism of doctors or undue claims by doctors are "news." The more sensational they are, the greater the "news value."

We do not for a moment believe the American College of Surgeons endorses or connives at much of the publicity that accompanies their meetings, and some of it is unavoidable. But much of it would be avoided by a good publicity director, and the reputations of physicians, some 145,000 of whom are not members of the "college," would be cleaner than they are with the obviously ineffective methods now in vogue.—*California and Western Mechanic,* December, 1925.

LACTIC ACID IN THE FEEDING OF PREMATURE CHILDREN

In the *Archives of Pediatrics* for July, 1925, Gleich states that lactic acid milk furnishes an excellent substitute for breast milk in feeding premature babies.

The presence of acid in the milk enables a premature child to tolerate a liberal supply of fat, which accounts in no small measure for the gain in weight and general improvement.

To encourage the care of premature infants at home, rather than at a hospital, may appear to be quite a departure from the routine. It has been his experience in the care of premature babies to witness an encouraging gain and development during the early weeks of the infant's life. Through cross-infection, which in a large institution cannot be avoided, these children easily fall a prey to disease, usually of the respiratory tract, and soon succumb.

A list of acid milks is appended. Some have been used in feeding premature children; the others, reasoning *a priori,* he recommends.

ACID MILKS SUGGESTED FOR FEEDING PREMATURE CHILDREN

	Cal. per liter	Cal. per oz.	pH.	Buffer value
a. Buttermilk 10-15 gms. flour 40-60 gms. sugar	540-700	16-20	4.55-5.52	low.
b. Chymogen milk	700	21	4.55-5.52	low.
c. Protein milk (6% sugar)	626	20	5.5 -5.0	low.
d. Lactic acid milk and karo syrup, 2 oz	940	28	4.0	low.
e. Acetic acid milk	790	24	4.2	low.
f. L. A. evap. milk lp. + 2 pts. water + 30 gms. flour + 30 gms. sugar	627	19		low.
g. Citric acid milk	550	16	5.3	low.
h. Hydrochloric acid milk	700	21	6.0	low.
i. Protein S. M. A. (acidulated)	500	15	4.6	low.

GONORRHEA IN THE LOWER GENITO-URINARY TRACT IN THE FEMALE

In the *Indianapolis Medical Journal* (December, 1922) Walker embodies his views on this subject in the following conclusions: 1. Gonorrhea in the female is the most poorly treated and most neglected of the infectious diseases. 2. It is many times overtreated in the male and undertreated in the female. 3. Active treatment in acute cases should be very guarded; rest is the most important. 4. Many women have chronic gonorrhea and do not know it. A man will seldom contract gonorrhea from a female upon whom he has conferred the disease. 5. The disease is rather difficult to treat. The greatest difficulty is to get the patient to realize the importance of persistence in treatment. 6. Better treatment and more personal attention to gonorrheal cases would lessen the number of de-sexing operations and greatly reduce the number of gonorrheal infections.

DEATHS DUE TO SYPHILIS IN FRANCE

Twenty thousand infant deaths, 40,000 abortions and 80,000 deaths among adults is the toll exacted by syphilis in France each year, according to the Minister of Labor, Hygiene and Social Welfare as reported in a recent number of *The Lancet* (London). The government is undertaking a campaign of public enlightenment and is instituting preventive measures for which 4,000,000 francs are appropriated annually. The Minister states that progress is taking place and points to the fact that syphilis is no longer regarded as a disease to be hushed up.

Correspondence

THE DEATH OF DOCTOR L. C. TAYLOR

Springfield, Dec. 15, 1925.

To the Editor:

When I learned of the death of Doctor L. C. Taylor, I realized that one of the very best friends of the Medical profession had passed away.

Doctor Taylor was appointed chairman of the Medical Examining Committee in 1917, at the time the Department of Registration and Education was organized under the Civil Administrative Code. He served continuously as a member of that Committee until his death, although there were times when he was abroad or on an extended vacation that he was absent from the immediate work of the Committee.

For many years, Doctor Taylor served the medical profession effectively as a member of the State Legislative Committee and was closely identified with medical legislation. He was the resident member of the Examining Committee here at Springfield and frequently I found it necessary to consult with him and I am sure I shall miss his words of encouragement.

He was an active student, resourceful and of good judgment. I feel that the Department has lost a real friend through his death.

I am writing you this letter in order that I might say for the Department of Registration and Education, a word of appreciation in behalf of the long public service rendered by Doctor Taylor.

Very truly yours,

A. M. SHELTON,

Director Department ofRegistration & Education.

ADAMS COUNTY RESOLUTIONS

Quincy, Illinois, December 23, 1925.

To the Editor:

Please publish the enclosed resolutions of the Adams County Medical Society, also find enclosed the correspondence relative to the controversy.

The newspapers here have given the controversy wide publicity.

Adams County Medical Society,

HAROLD SWANBERG, M. D., Secretary.

The following is the resolution and a brief of a reply of the Western Catholic Union Building management.

RESOLUTIONS

WHEREAS it has been called to the attention of the Adams County Medical Society that the management of the Western Catholic Union Building of Quincy, Illinois, is sending out literature to physicians outside of Quincy stating "that there is a demand here" for physicians and surgeons, and that such management is endeavoring to induce physicians located in other communities to come to Quincy to practice their profession and secure offices in the W. C. U. Bldg., and,

WHEREAS at present there is an ample number of physicians in Quincy to take care of the needs of the people, which is testified by the following facts:

The A. M. A. states that at present (1925) there is an average of one physician to every 726 people in the United States. The 1925 A. M. A. Directory gives the population of Quincy as 36,-764 with 72 graduate physicians, making one physician to every 511 persons. It is claimed, however, that Quincy now has 41,000 people. A recent survey shows 71 graduate physicians here, which would make the physician to population ratio 1 to 577 even if Quincy's population be considered as 41,000 (U. S. Census Bureau estimate of Quincy's population for 1925 is 37,500). Therefore it is easily seen that even if Quincy has a ratio of 1 to 577, it is much more than the average throughout the country (1 to 726) and that Quincy actually has now a *surplus* of physicians.

WHEREAS the spreading of such false information concerning the "demand" for more physicians in Quincy is apt to work a real hardship on physicians who may be induced to locate here by causing them to give up a practice in other territories to come to a community that already has a *surplus* of physicians,

Be it resolved that the Adams County Medical Society at its regular meeting held at Quincy on the 14th day of December, 1925, protest this action of the Western Catholic Union Building management and that copies of this resolution be sent to all members of the Supreme Council of the Western Catholic Union, to the

American Medical Association and the several state medical associations in nearby states as well as the Quincy press.

Adams County Medical Society,
HAROLD SWANBERG, M. D., Sec.

REPLY FROM THE W. C. U.

To Adams County Medical Society:

With no apologies to offer, we gladly take this opportunity to correct an apparent misunderstanding on the part of the Adams County Medical Society as evidenced by the article and resolution in Tuesday evening's paper. We emphatically deny the charge that we have tried to spread false propaganda. To justify the sending out of the prospectus objected to by the medical society, we wish to state that a number of these have been sent out to all classes of professional men such as bonding houses and bond salesmen, insurance companies and insurance agents, real estate agents, in fact to professional men and women of every nature, and not merely to doctors and dentists. Newspaper advertisements have been carried on in some of the metropolitan papers, advertising Quincy and our building, in fact the physicians were only one class of professional men who have been asked to come into our building.

In sending our prospectus and in advertising in the metropolitan press we have not only advertised the building, but we have advertised Quincy, expressing our honest opinion about Quincy's wonderful standing and doing for it only what a real friend of Quincy could be expected to do. The retail merchants, wholesalers, manufacturers and professional men maintain the Chamber of Commerce for the purpose of promoting the general welfare of our city, constantly striving to bring new business to the city.

(Signed) F. WILLIAM HECKENKAMP, JR.,
President W. C. U.

NO NEED IN ILLINOIS FOR A SOCIAL WELFARE SERVICE FROM THE MAYO CLINIC

Mattoon, Illinois
December 16, 1925.

To The Editor:

Inclosed find letter which is self-explanatory and I trust that it may be of some use to you in your editorial work. I was not aware of the extent of the Mayo Clinic's work along the line of social welfare work until I received this letter. It seems to me there should be some limit to that kind of stuff.

In Coles county we have no T. B. nurse, no community nurses, no welfare workers and no free clinics. Mattoon and Charleston each have a school nurse. The county judge of Coles county during the past year sentenced three chiropractors, two to the penal farm for six months and one to the county jail for violation of the medical practice act.

Being health commissioner of the City of Mattoon, I believe I am in a position to authoritatively state that health conditions in Coles county were never better in spite of the fact we have been deprived of the benefits of community nurses, red cross nurses, welfare workers and social uplifters.

Very truly yours,
T. O. FREEMAN.

The following is a letter from Mayo Clinic:

December 5, 1925.

Dr. T. O. Freeman,
Health Officer,
Mattoon, Illinois.

My Dear Dr. Freeman:

Miss ——— ———, Mattoon, has been a patient here several times. In September, 1925, she was found to have active, advanced, pulmonary tuberculosis, positive sputum and sanatorium care was advised. Miss ——— told us that she did not know whether sanatorium care could be afforded by the family. Her mother is Mrs. ——— ———. Miss ——— lives with her mother.

We referred the case to Miss Kaelberer, Community Nurse, but she wrote us that she had discontinued the work and was unable to make the visit. We have not had any answer to our letters to Miss ——— and we are very eager to know in these cases of tuberculosis what arrangements can be made for sanatorium care. It seems particularly urgent that this patient should have some advice in making plans, since her father and four brothers and sisters died of tuberculosis.

May we hear from you as to what arrangements this patient has made and what her condition seems to be at this time?

Very truly yours,
HELEN ANDERSON YOUNG,
(Mrs. Helen Anderson Young),
Director, Medical Social Service.

NEOSALVARSAN IN ANTHRAX

One injection of neosalversan is generally sufficient to cure anthrax. (Grasser, *Wien. klin. Woch.*, 1924). This treatment is also recommended to veterinarians.

Original Articles

ABNORMALLY LOCATED GOITERS*

FRANK H. LAHEY, M. D.
BOSTON, MASS.

The development of the thyroid from the ventral aspect of the entoderm close by the ventral end of the first pharyngeal pouch caudal to the anterior portion of the rudimentary tongue is too well known to require extensive repetition. As the embryo enlarges, a bud of thyroid tissue develops away from the pharyngeal ventrally and a canal remains behind to connect it with the point in the pharynx where the thyroid originated, the dimple at the apex of the circumvallate papillae, the foramen cecum. As the embryo develops the bland descends through the tongue, becomes bi-lobed and occupies its worldly position below the thyroid cartilage, leaving behind it a fibrous tract which is normally the obliterated tube connecting the gland with its point of origin, the foramen cecum. Dependent upon the time relation of the fusion of the hyoid bone to the time of descent of the thyroid, this so-called thyro-glossal tract is located behind, through, or in front of the hyoid bone. If any portion of the thyro-glossal tract remains unclosed, there then occurs the so-called thyro-glossal cyst.

It is now quite universally accepted by embryologists that the thyroid originates but from a single median anlage and that the existence of lateral anlagen has been disproven embryologically by the failure of the so-called ultimobranchial bodies which were thought to represent the lateral thyroid organs, to develop distinguishable thyroid tissue. Likewise, clinically, it is disproven by the fact that myxedema frequently develops after the excision of lingual goiter, an example of which we reported two years ago in the *Journal of Surgery, Gynecology and Obstetrics.* It is at once obvious when myxedema develops after excision of a lingual goiter that the goiter represents all the existing undescended thyroid tissue and that myxedema should not occur if lateral thyroid bodies exist, since in lingual goiter only the thyroid of median origin is removed.

Since usage has established the terms lingual, sublingual, etc., goiter, even though they represent in reality only accessory or aberrant thyroid tissue, they must necessarily be included in a clinical discussion of misplaced goiter.

With the exception of the lateral aberrant thyroids, which occasionally occur in the supraclavicular space outside the sterno-mastoid muscles and are caused by segments of embryologic thyroid tissue becoming detached in development and remaining as rests until late in life, it is evident from the brief discussion of the embryological descent of the thyroid that the misplaced goiters due to developmental defects must occur in the median line somewhere between the extrauterine position of the thyroid isthmus and the foramen cecum at the base of the tongue. A few have been reported in the median position in the mediastinum, and endotracheal thyroid tissue has also been reported, usually at the junction of the larynx with the trachea.

These aberrant goiters consist first of a true lingual goiter in which a mass located in the median line on the posterior aspect of the tongue projects above the level of the tongue. The tumor is dark red, lobulated, and bleeds readily on scratching. In such a case operated on in our clinic the size of the mass was of sufficient magnitude to interfere with swallowing, and, as stated above, myxedema resulted after its removal.

The intralingual goiter is similar, as is the sublingual, except for their location, as their names imply. These goiters are, as a rule, solid masses of thyroid tissue, although adenomata which could be shelled out have been reported.

Thyroids which descend below the hyoid rarely fail to reach their normal position, although long tail-like masses representing the pyramidal lobe may run well up the neck.

Removal of the lingual, intralingual and sublingual goiter should be undertaken only when they are producing symptoms, which occur in the form of pressure or obstruction to swallowing food. The very great possibility that their removal may cause myxedema should lead one to operate upon them only with very clear indications for doing so.

If surgery is to be undertaken, the true lingual goiters projecting into the mouth are best removed through the mouth. The mass may be excised by snapping and cutting each section individually, the removal being wedge-shaped in

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wis., Oct. 27-31, 1924.

character so that the edges of mucous membrane may be co-apted over the defect.

Intralingual and sublingual goiters are best removed through the floor of the mouth, and a transverse rather than a longitudinal skin incision should be made. Longitudinal skin incisions in the neck made from the median portion of the chin down the neck tend to produce unsightly and disfiguring scars of the check-rein variety. The removal of goiters below the level of the hyoid requires no special mention, as their operative treatment does not differ from that of the goiters of usual location.

Before leaving the subject of goiters due to developmental errors, it would be well to say a word regarding the classification of these types of goiters from the point of view of their anatomical character rather than their location.

A true accessory thyroid is one in which the area of thyroid is in no way connected with the thyroid, even by a band of fibrous tissue.

A pseudo-accessory thyroid is one in which the area of thyroid tissue appears to be separate from the gland, but on closer examination proves to be connected to it by a narrow isthmus of thyroid tissue.

An allied accessory thyroid is an area of thyroid tissue separated from the gland by some distance but connected with it by bands of fibrous tissue. These are usually adenomata which have become extruded from the gland and have slipped either under the belly of the sterno-mastoid muscle so that they are external to it, or into the superior mediastinal cavity. The fibrous bands are portions of their capsules still remaining attached to the site of the adenoma's origin in the thyroid.

The true misplaced goiters in the accurate sense of the term are the true enlargements of the thyroid itself which have acquired an unusual location.

The types of goiter which are prone to acquire unusual location in their order of frequency are adenomatous goiter, most commonly single adenoma, colloid goiter and cystic goiter.

Encircling goiters have been by no means rare in our experience and have usually been of the colloid variety.

Diffuse colloid goiters are very apt to have well marked prolongations of their upper poles—the gland tapering upward into an apex so that an extension of several inches beyond the point of entrance of the superior thyroid vessels may exist. These prolonged superior poles may occupy one of two positions. They may extend directly up along the anterior border of the sterno-mastoid muscle until in extreme cases the upper limit of the goiter appears to be just beneath the ears, or the prolonged upper poles may slip inward beneath the superior thyroid vessels. Poles of this type enter the gland well below the very apex of the pole where they so constantly enter in goiters of the primary hyperthyroidism or exophthalmic type. Having turned their apices inward, they then pass directly behind the thyroid cartilage, the right and left upper pole passing inward from either side until they meet, and often pass each other, thus producing a complete encirclement of the larynx. We have occasionally seen respiratory difficulties with goiters of this type, but due to the unyielding structure of the laryngeal box, stridor and difficulty in breathing in goiters of this type have not been common. Most of the completely encircling goiters have been discovered by us in the course of a thyroidectomy when the poles were found by the exploring finger to extend behind the laryngeal cartilage.

In the same way the nodular goiters appearing high on one or both sides of the neck are adenomata developing in the upper pole or poles and slipping out beyond the upper border of the omo-hyoid muscle.

As to the surgical removal of goiters of either of these types little need be said, except that dislocation of the prongs of thyroid tissue projecting behind the larynx should be made by passing the finger behind the thyroid mass rather than in front of it, thus avoiding injury to the superior thyroid vessels which pass over and enter on the anterior surface. In this way the tongues of thyroid will be so dislocated outward that the cord of vessels making up the superior vascular pole will stand out plainly, entering well down toward the body of the gland, and may be ligated or clamped in one grasp.

A little lower in the neck we have in a very similar way seen colloid and adenomatous goiter send projections posteriorly behind the esophagus or trachea.

Still lower down in the neck adenomata arising in the body of the thyroid not infrequently pass beneath the sterno-mastoid muscle and even

the great vessels, too, lay well external to the posterior border of that muscle.

As has been stated under the heading of allied accessory thyroid, adenomata may be so extruded from the outer border of the gland that they slip under the belly of the sterno-mastoid and appear in the posterior triangle of the neck as a discrete mass. Where a single adenoma is extruded in this way no adenomata existing within the thyroid itself, considerable difficulty may arise in determining the true character of such a mass. Of considerable assistance in a condition of this sort is the demonstration of limitation of motion in the mass solely in the outward direction, since in being extruded from the true gland there remain bands of fibrous tissue from the capsule still connecting it with the thyroid, and while the mass moves freely inward, upward and downward, it cannot be pushed beyond the limit of these fibrous bands in the outward direction, while tumors of non-thyroid origin, together with true accessory thyroids, have no limitation of motion in any one particular direction.

Symptoms due to vascular obstruction by pressure on the great vessels of the neck have been reported, but are unusual. We have many times seen the great vessels stretched out over large adenomatous masses which have pushed behind them, but have not seen symptoms indicating obstruction of the vessels in any way.

The group of misplaced goiters which frequently produce definite symptoms (chiefly respiratory difficulties) are those misplacements occurring below the origin of the trachea or esophagus, since their symptoms are due to pressure upon these two structures.

We have seen retrotracheal and retroesophageal goiter anywhere from the origin of the trachea and esophagus down to as low as was possible to reach with the fingers into the superior mediastinal cavity.

We have frequently seen tongues of colloid and adenomatous thyroid tissue sticking out from the posterior or inferior surface of the body of the thyroid, projecting behind the trachea well over to the opposite side, flattening that structure either laterally or from behind forward and producing respiratory stridor with marked difficulty in breathing. Likewise, we have seen adenomata both at the normal level of the thyroid and within the thorax slip behind the trachea and esophagus and produce narrowing of those structures with marked difficulty in breathing and occasional difficulty in swallowing.

Descent of adenomata and tongues of colloid goiter into the superior mediastinum produces one of the most common and serious misplacements of all goiters. Exclusive of the aberrant goiters occurring in the superior mediastinum which are developmental defects and represent but an almost infinitesimal per cent. of intrathoracic goiters, all intrathoracic goiters are either adenomata, which originate in the normally placed thyroid and are pushed downward, or tongues of colloid goiter whose growth is guided downward by the anatomical structures about the thyroid. As we have often stated, when one considers these anatomical structures, it is most surprising that a great majority of thyroid enlargements do not progress downward into the superior mediastinum rather than anteriorly as they so commonly do.

To consider briefly anatomical factors tending to produce intrathoracic growth, it should be recalled that the thyroid ascends and descends with swallowing, moulding for enlargements, particularly of the lower pole, a bed always in the downward direction, that the lower pole of the thyroid rests unopposed by any structure, directly over the superior thoracic aperture, and, finally, that over its anterior surface run the sterno-thyroid, sterno-hyoid, omo-hyoid and sterno-cleido-mastoid muscles—with the exception of the omo-hyoid all attached to the strenum and tending to direct any enlargement of the inferior pole of the thyroid downward behind that bone and into the superior mediastinum. These are the mechanical factors which bring about misplacements of thyroid tissue into the thoracic cavity.

One should suspect intrathoracic goiter in any case with respiratory stridor with or without the presence, but particularly in the presence, of goiter. We wish particularly to call attention to the fact that we have had several cases of intrathoracic goiter and one case of an intrathoracic thyroid cyst in which attacks of respiratory obstruction amounting almost to suffocation were intermittent in character, the seizures being followed by considerable periods of very free and comfortable breathing. This we believe to be due to temporary changes in the circulation of the adenomata with temporary increase in size of the tumor. A considerable number of

our cases of intrathoracic goiter have given histories of having been treated for asthma over long periods of time, although critical auscultation revealed the breathing as not of the typical asthmatic type.

Several have found it impossible to sleep on one side without producing respiratory difficulty, posture undoubtedly producing increased tracheal pressure. Not a few have complained of a feeling of pressure beneath the sternum and some of these cases in which the adenomata have insinuated themselves between the trachea and esophagus have complained of difficulty in swallowing. A few of these patients with intrathoracic goiter have presented swelling of the face due to obstruction to the large veins of the neck, but in our experience a majority of these patients have had malignant intrathoracic masses.

Enlargement of the veins over the upper part of the chest has occasionally occurred and is indicative, we believe, of an intrathoracic mass of large proportions. They are caused by obstruction of the thyroid veins entering the internal jugular causing a compensatory dilatation of the superficial thoracic veins. It has been possible to palpate the rounded top of a completely intrathoracic goiter in some of the cases and dulness over the upper chest has usually been present. Palpable deviation of the trachea from its median position as it enters the mediastinum has often led us to suspect intrathoracic location. The position of the trachea is one of the most valuable signs in the diagnosis of goiter of intrathoracic location. By far the majority of goiters of this type are adenomatous in character and originate most commonly in either the right or left lobe. If by chance they happen to originate in the isthmus, being perched upon the trachea, they tend to topple either to the right or to the left with the result, then, that deviation of the trachea either to the right or to the left is a very common, perhaps almost constant, factor in intrathoracic goiter. Since the position and defects in outline of this structure may be quite accurately portrayed by x-ray, this, then, is one of the very reliable diagnostic features of this condition.

Endo-tracheal examination often demonstrates denting, narrowing and displacement of that structure.

All goiters, the lower poles of which cannot be palpated while the patient swallows with the chin hyper-extended, should be suspected of intrathoracic location, particularly in the presence of difficulty in swallowing or breathing.

We believe that intrathoracic goiters and those goiters tending to become intrathoracic should be removed early because they tend to produce tracheal obstruction, and that often late in life, because they tend to progress downward extensively into the mediastinum, making deep dissections in that direction necessary, and endangering patients' lives, following this procedure, by the not infrequent occurrence of mediastinitis and pulmonary complications.

Conclusions:

Misplaced goiters quite often produce symptoms by interfering with swallowing (lingual, retro-tracheal and retro-esophageal goiters), by interfering with breathing, encircling retro-tracheal and intrathoracic goiter. They require prompt and early surgical treatment.

A lesser group, particularly aberrant goiters, produce no symptoms but require differentiation from other lesions.

Still another group, retro-tracheal, retro-esophageal and intrathoracic goiters, require surgical removal as a protection against the production of pressure symptoms and lest their late removal entail measures of such magnitude as to endanger life.

SOME PRACTICAL POINTS IN THE DIAGNOSIS AND TREATMENT OF ACUTE PANCREATITIS*

JOHN A. WOLFER, M. D., F. A. C. S.
CHICAGO

I wish to present to you for your consideration certain phases of the subject of acute pancreatitis. The general conception of this disease is that it is always an exceedingly acute and highly fatal malady. There is no question but that acute hemorrhagic or gangrenous pancreatitis is one of the most serious and destructive diseases which confronts the physician today and that the mortality is exceedingly high, nevertheless, I am convinced that there are many cases which are of a different type, much less destructive, cases which may be diagnosed and in which

*Read before the Section on Surgery, Illinois State Medical Society, Quincy, May 19-21, 1925.

treatment will not only save the patient's life but restore him to perfect health.

It is not my purpose to enter into any detail regarding the etiology of acute pancreatitis except as it may influence the trend of thought in making a diagnosis and applying the proper treatment.

After spending considerable time in the study of the physiology of the gastro-intestional tract, as well as the symptoms which gastro-intestinal diseases produced, I have come to some rather definite and logical conclusions. There is a definite symptom complex which one sees in many diseases. I should like to describe this complex since it will enlighten certain statements which I shall make later on. The complex is as follows: An individual, usually after taking food, experiences discomfort in the epigastrium. The onset of this discomfort may be immediately after taking food or not for an hour or two or even three. In the mildest form it is merely a discomfort or a sense of fulness in the epigastrium. At times belching relieves this discomfort for the time being, at other times the distress increases and gradually leads to pain. The pain may begin suddenly with but a few moments of distress. This pain may be of any degree of severity, often gripping in character and comes in waves of greater or lesser severity. Occasionally belching will mitigate the pain and the patient unconsciously swallows air to encourage belching. At other times vomiting occurs. In many instances this relieves the pain, at times suddenly and completely. If vomiting occurs some time after eating, the vomitus will be sour and biting to the tongue. If it occurs immediately after the taking of food, it will resemble the food eaten. At other times the discomfort will be a burning sensation and there is a tendency to acid pyrosis. In due course of time the distress or pain may pass away if not relieved by vomiting. Not infrequently this complex appears when the patient is hungry. Here it is often relieved by the taking of food or even by a drink of water. The mechanism of the production of this symptom complex, I shall discuss in another paper. We all know that it exists and you are all familiar with it. It is dyspepsia, either mild or severe. I have found this group of symptoms in gastric ulcer, duodenal ulcer, gall bladder disease, appendicitis, colon disease, pelvic disorders, pyelitis, incomplete intestinal obstruction, visceroptosis, syphilis, excessive cigarette smoking, heart disease, pulmonary tuberculosis, —and in pancreas disease. It is not characteristic of any specific disease but in practically every instance it means serious trouble somewhere. Truly in most instances certain facts in the history and variations in the grouping of the symptoms and associated symptoms with certain physical and laboratory findings will lead us to an anatomical diagnosis.

I call this syndrom to your attention since it may be of any degree of severity, it is found in a variety of diseases, that it is not pathognomic of any specific disease and that it is found in pancreatitis. The severity of the individual symptoms will be controlled more or less by the severity of the causative pathology.

I wish to call to your attention as a clinical and pathological entity, the type of acute pancreatitis that Bosanquet, Neurath, Moynihan, Körte and others have referred to as a complication of parotitis and acute infectious diseases. This type may be secondary to some intra-abdominal inflammatory process, such as an infected gall bladder or appendix. It is entirely possible that the primary infectious focus may be elsewhere in the body, such as in a tooth, tonsil, sinus or middle ear. I shall omit for the sake of clarity, acute hemorrhagic pancreatitis, and confine my remarks solely to this type of case.

The pancreas, a highly specialized parenchymatous organ, lies in close proximity to other organs which we know are frequently the seat of extensive and long continued pathological changes. It is still a mooted question how and why a gall bladder becomes infected. We do not know the cause of chronic gastric and duodenal ulcers. It has been my experience to see a number of duodenal ulcers follow in the wake of appendiceal infections. This has come to my attention so often that I can not mentally separate the two, and leads me to believe that there must be some distinct association between them. I believe that the infection travels from the appendix to the upper abdomen, to, under certain conditions produce an ulcer and, under other conditions, produce a pancreatitis. This may depend upon the type of organism or its virulence or its mode of dissemination. There seems to be no question but that chronic pancreatitis is today an accepted pathological entity and daily

there is added evidence that the infection is carried to the pancreas either by the way of the lymph or blood stream or by direct continuity or continguity of tissue. Why, then, can not acute inflammatory reactions be expected?

The pathology of the pancreas has never been studied to the degree comparable to that of other organs. The reason for this is very apparent. I might say that never is there a section of the pancreas removed on the operating table for microscopic examination, although it has been demonstrated that this procedure carries but little danger. In the majority of laparotomies, the pancreas is not subjected to digital or visual exploration. After death there is a rapid digestion of the pancreas which so mars the histological picture that the pathologist fails to note any lesion which may be characteristic of antemortem changes. In those autopsies performed within an hour or two after death, it is possible to observe gross and microscopic changes which might indicate preexisting pathology. It is unnecessary to state that in the acute hemorrhagic type, the gross appearance at autopsy is characteristic.

Sir Mayo Robson uses a rather comprehensive classification of pancreatitis, but few pathologists seem to have observed the changes which his classification would indicate. Those cases of pancreatitis which occur as a complication of acute parotitis are undoubtedly of an acute embolic type. This condition has been refered to by Bosanquet, who reports eleven cases in 105 cases of parotitis and Neurath, who reports four cases. The only autopsy report seems to be the case reported by Lemoine and Lapasset. In this case the pancreas was swollen, edematous, congested and of a reddish gray color. Since the majority of these cases recover, the pathological picture is rarely observed, nevertheless, a rather vague symptom complex has been described which would indicate an involvement of the pancreas.

It is my firm conviction that a number of the acute gastric upsets which one encounters are due to acute pancreatitis. Furthermore, I believe that the pancreas is involved in a certain number of appendiceal and gall bladder infections. We have all seen cases of acute cholecystitis or acute appendicitis which have been operated upon, and subsequently developed symptoms of peritonitis, paralytic ileus and in spite of secondary drainage or other procedures, went on to a fatal termination. Many of these cases are instances of acute pancreatitis. There is no question but that the appendix or gall bladder were diseased, even acutely diseased, but the more severe symptoms were produced by the pancreatic infection. There is, furthermore, no doubt in my mind but that the majority of these pancreatic inflammations subside within a few days as do those cases which complicate acute parotitis and for that reason are not comprehended. This is evidenced by the finding of healed areas of fat necrosis.

As an example of such a case, let me recite the following case record:

On July 9, 1923, I was asked to see a young man, 22 years of age, who complained of pain in the left upper abdomen. The pain was colicky in type but present most of the time. He also had nausea and vomiting with fever. The history was that he had had a number of such attacks before, which were attributed to indiscretions in diet. The night before I saw him, he had eaten some ice cream with what he thought was sour strawberry sauce, and he also had drunk some near beer. The following morning the pain and vomiting began. When I saw him his temperature was 100, pulse 106. General findings were negative except for tenderness in the left upper abdomen. The upper left rectus was distinctly more resistant than the rest of the abdomen. There was slight tenderness in the left lower abdomen, but no tenderness or rigidity in the right lower abdomen. The bowels had not moved for two days, so he was ordered an enema and a cathartic in the belief that he was suffering from food poisoning. As a result of the enema and cathartic, he had a number of stools and he felt better the next morning. In the afternoon the epigastric pains began again after eating a small quantity of ice cream. At 8 P. M. his temperature was 102, pulse 116. The pain was paroxysmal in type and somewhat to the left of the epigastrium. He also complained of pain in the right shoulder and chest. The lungs were found negative. He was very tender in the left upper abdomen and there was considerable upper left rectus rigidity. No tenderness nor rigidity in the right lower abdomen. The following day found him feeling badly. Temperature 101.4, pulse 116. There was considerable pain and distress in the obdomen with distension, and he vomited occasionally. He was quite tender and rigid over the left upper abdomen and an indefinite mass or muscle spasm could be felt, the patient still complained of the annoying pain in the right shoulder and neck He was sent to the hospital. The leucocyte count was 21,500; 70 per cent. of which were polymorphonuclears. The urine was negative. I had Dr. Chas. A. Elliott see him in consultation and it was concluded that he probably had a surgical abdomen, but we delayed operation until morning, in the hope that a more definite diagnosis could be made. The follow-

ing morning the patient felt much better. The temperature was down to normal. Pulse 100 and there was practically no pain in the abdomen. The pain in the neck was still present. His sclerae were somewhat icteric. Dr. Elliott felt that it was an attack of infectious jaundice. From then on the symptoms rapidly disappeared, except that the leucocyte count stayed up around 12,000 to 14,000. About the second day in the hospital, a crop of herpes appeared over the right shoulder and neck, which was the cause of much discomfort. He left the hospital July 20, 1923, feeling well but weak. On July 30, 1923, he reentered the hospital for study. The physical findings were negative. His temperature was normal. The pulse running around 90. The leucocyte count was 14,200, of which 90 per cent. were polymorphonuclears. The urine was negative. The gastro-intestional x-ray examination showed a fish hook type of stomach with no deformity and normal peristalsis. The duodenum was normal. The transverse colon showed some local spasm. There was ileo-cecal incompetency. An appendix shadow remained after emptying of the colon. It was decided to remove his appendix. On Aug. 7, 1923, I opened his abdomen and found the appendix twisted upon itself and much distended. There were also some adhesions about the ahead of the cecum. The appendix broke when a clamp was placed in position, the contents were sero-purulent. Fearing a possible contamination, I did not explore the upper abdomen. He made an unusually smooth recovery and left the hospital on Aug. 17, 1923, and since then has been in perfect health, has gained considerably in weight and has had no recurrences of his previous trouble.

I believe this to have been a comparatively mild case of acute pancreatitis, most likely secondary to an appendiceal infection. The less acute inflammation of the previous attacks subsiding only to have reinfection take place. The fact that he gained rapidly in weight after the operation is also significant, since we know that pancreatic disease leads to rapid wasting. This is especially characteristic of pancreo-lithiasis. The cases reported by Bosanquet and Neurath were pancreatitis complicated parotitis, are certainly duplicated in the case just mentioned.

Most of these cases, which are diagnosed as acute indigestion or dyspepsia, or the ones which are confused with some other acute intra-abdominal condition, or complicate acute parotitis, most likely fall into the group so well described by Sir Frederick Eve, as showing masses of polymorphonuclear leucocytes and areas of purulent infiltration around patches of necrosis. The organ is swollen and edematous. It would seem that the theory of Fitz, in which Körte agrees, is a most logical explanation for these acute cases of pancreatitis. Fitz reasons that the process is always an infection and that inflammatory changes are always present from the first. One type of the disease may pass into another depending upon the virulence of the infection, the resistance of the patient, or upon the time in which surgical interference is instituted. Some may clear up entirely, others may go on to rapid and extensive destruction of the gland, with or without abscess formation, others may go on to the chronic state. My own experience in a relatively small number of cases would bear this out.

The symptoms which these cases present may vary considerably. It has been my experience to see two types in regard to the symptoms, those with an acute and abrupt onset and those with a relatively slow and mild onset. The cases with rapid destruction of the pancreatic tissue will be striken down very suddenly and not infrequently go on to a rapid and fatal issue, while those with a relatively mild pathological process will respond much less strikingly and the symptoms will be less severe. In the cases with the abrupt onset, the patient is seized with a sudden severe pain in the epigastrium, and not at all infrequently there is considerable shock. The pulse will be rapid and the temperature subnormal. The pain has a tendency to radiate to the left upper abdomen into the region of the spleen or toward the left shoulder. Nausea is as a rule present and often it will be intense with persistent vomiting. The picture is not unlike that produced by a perforated ulcer, except in the physical findings. The pain has a tendency at times to come in waves of greater or lesser severity, often becoming very much less after vomiting, only to reappear in a few moments. This acute initiating syndrom has a tendency to subside within a variable period of time, at least, it may become much less severe. The temperature tends to rise, never high in this class of cases. An early leucocytosis is present. The pulse has a tendency to remain relatively high in comparison to the temperature. Cyanosis is frequently present and some observers have called especial attention to cyanosis of the abdominal wall. I have seen this in one case. In those cases with insidious onset, the symptoms are ushered in by dyspepsia, although not of exceptional severity. Many of these patients have experienced these symptoms many times before and attribute them to an indescretion in diet. One rarely sees these

cases until twenty-four to forty-eight hours after the onset, some even longer. The persistent crampy pains, nausea and vomiting bring the patient to the physician. These patients present a typical acute or subacute dyspepsia, the individual symptoms will vary, depending upon the severity of the disease, the resistance of the patient and possibly other factors which are unknown to us. The pain often subsides until the patient becomes hungry or until he takes some food and then within a few minutes it recurs again, as was illustrated in the case just quoted. Upon physical examination, tenderness will be present in the upper abdomen, usually in the mid line and to the left. At times this will be quite pronounced. The upper abdomen is rigid, especially the left rectus, but rarely to the degree seen in a perforated ulcer or in the acute hemorrhagic type of pancreatitis. Constipation is present and soon tympany appears. In the severe cases, free fluid may be demonstrated in the peritoneal cavity within a few days or even earlier. If this becomes of some quantity and an aspiration is done, it will not infrequently be found to be bloody. The fluid may be only in the lesser peritoneal cavity. The symptoms may subside within three to six days, depending upon the reaction of the individual, or they may persist or become worse. In the later cases, dyspnoea is quite characteristic. Jaundice of varying degrees may be present in some cases. We have heard much about the pancreatic efficiency tests, such as the glucose tolerance, the Cammidge reaction, Loewi's test, the Sahli test, salol test and the Winternitz test. In most instances they are useless and can not be depended upon. Even in the hands of an expert chemist they yield misleading information. It is remarkable how little interference there is in the efficiency of both the external and the internal secretion in extensive disease of the pancreas.

As an example of the difficulty one encounters in the differential diagnosis of pancreatitis, let me mention an experience I had some ten years ago. Two men were admitted to my service at the Cook County hospital, entering within twenty-four hours of one another. The first, a man about fifty years of age with a dyspeptic history, had a sudden onset with pain in the upper abdomen, with nausea and vomiting. He had a fever with increased pulse rate and a leucocytosis. He was tender in the upper abdomen and there was considerable rigidity of the upper recti muscles. Rather extensive lung findings cautioned me in operating upon him at once, and I concluded to watch him for a few days. The symptoms gradually subsided until one night a few days after entering the hospital, he became suddenly acutely ill and died within a few hours. At autopsy, a perforated gastric ulcer with abscess was found. The second man, of approximately the same age, gave practically the same history and findings. In view of the findings of the first case, I decided to operate on this man at once. At operation, a pancreatic abscess was found. It was pointing between the stomach and the transverse colon. No ulcer was present. The abscess was drained and he made an uneventful recovery. Present day diagnostic skill might have detected the pathology.

The diagnosis of this condition in many instances is extremely difficult, since there are no pathognomic symptoms. A patient suffering from appendicitis or gall bladder disease may have repeated acute attacks, each representing an acute or a subacute exacerbation of the inflammatory process. The patient and the physician know this and attribute each attack to this present and underlying pathology; in many instances never examining nor questioning the patient. It is only when the symptoms are distinctly different that they attract the physician's attention. The change in the symptomology is very subtle and the presence of a complicating pancreatitis is not thought of. The patient may be operated upon with the diagnosis of appendicitis or cholecystitis and yet the diagnosis is not made. Recovery will depend upon the severity of the pancreatic involvement.

I should like to give in detail the history of a patient, recently under my care, to illustrate the associated pathology, symptomology and physical and laboratory findings in a case of pancreatitis. This history will illustrate the difficulty one may encounter in making a diagnosis even on the operating table, and the pertinent findings at operation. One must realize that many of these patients are critically ill and will not tolerate a long operation.

T. S., a white female, age 21, entered my service at Wesley Memorial Hospital, May 17, 1924, complaining of abdominal pain with vomiting, abdominal distension and loss of strength. Her history was as follows: She was always well during childhood. At the age of 15 she began having right lower abdominal

pain which was often accompanied by vomiting. These attacks would come on during the day and last for about half an hour, then disappear. They were more likely to appear about her menstrual time. For three weeks or more she would be free of pain. She had no urinary discomfort. The pain was always in the right lower abdomen. Her bowels as a rule were constipated. She was seen at odd times by a physician who gave her medicine, which did little good. She was married at the age of 19 and soon after this she was advised by a physician to have a cervical dilitation and curettage. This was done and in about three months she became pregnant. During her pregnancy she felt a trifle better. She had a normal delivery, then about five months later the pains recurred. At this time the pains in the right lower abdomen were more likely to come on after eating and she would vomit after almost every meal. She entered Cook County Hospital on March 19, 1924, at that time weighing about 185 pounds. I will not quote the history from that hospital except to say that the impression was that she was likely suffering from a gall bladder infection. A cystoscopic examination revealed a very small stone in the bladder and edoema about the right urethral orifice with pus coming from the right kidney. An operation was performed in which the right kidney was removed. It was noticed at the time of the operation that there was a great amount of serous exudate in the perirenal fat. The kidney was reported to have had multiple small subcapsular abscesses. The wound became infected and drained profusely, but the patient appeared better. About two weeks after the operation her abdomen became distended and she began having pains and vomiting again. Her temperature was erratic, ranging from 100 to 103. The pulse was always high, ranging from 120 to 140. She left the hospital against the advice of the physician, on April 19, 1924, with a temperature of 100 and a pulse of 140. She went to her home and her condition grew progressively worse up to the time she came under my observation, at Wesley Memorial Hospital. On examination, there was revealed a markedly distended abdomen which gave a fluid percussion wave. The dullness would shift with the moving of her body. She was very tender in the upper abdomen and due to the distension, no abdominal organs could be palpated. She looked much emaciated and was complaining bitterly of pain in the abdomen. She had to be propped up in bed so she could breath freely. The heart tones were rapid but good quality. Her left chest showed an area of flatness extending up to the sixth rib. A needle was introduced and 16 ounces of a clear straw colored fluid was aspirated. This fluid was accidentally lost. The vaginal examination was negative. The leucocyte count was 8,900, red count was 3,960,000, Hb 70 per cent. The urine showed some albumin, no sugar and no casts. On the following day, 825 c.c. of dark bloody fluid was aspirated from her abdomen. This fluid had a sp. gr. of 1,016; benzidine test for blood was strongly positive. Albumin positive. The cell count was 8 per cent. polymorphonuclears, 92 per cent. of lymphocytes. There were also many endothelial cells. On May 19, her W. B. C. was 16,000. On May 20, I withdrew 7,505 c.c. of bloody fluid from her abdomen. On examination, this fluid gave a sp. gr. of 1.017, bile not present, blood strongly present. Ten per cent. albumin, mucin negative, Sudan 111 for fat was negative. The cultures were negative. Following this aspiration she felt much relieved. During the next few days her temperature varied from normal to 101 and her pulse from 90 to 140. Though hungry, she could eat but little, on account of the cramps which the food produced, and what little she did eat she would vomit. The bowels were constipated but responded to enemas. An x-ray examination gave little information except for evidence of fluid in the left chest and subphrenic pressure from fluid. On May 23, under local anesthesia, I opened her abdomen through a right para-median incision. A large amount of dark bloody fluid escaped from the peritoneal cavity, and thick flakes and plaques of exudate were found in the right side of the abdomen. A thin plastic exudate covered the small bowel. The pelvic organs were normal to palpation. In a hurried examination, I could not find the appendix but there were no adhesions about the caecum. The omentum was rolled up in the upper abdomen and adherent to the anterior abdominal wall and stomach. After considerable difficulty, I freed the gall bladder, but it did not look especially involved in the inflammatory process. I could find no tubercles nor any organ which seemed the cause of the peritoneal irritation. Due to the critical condition of the patient and the unfavorable response to scopalamine, which was given before the operation, I was obliged to close the abdomen before my search was satisfactorily completed. Following the operation, she reacted favorably to forced fluids and the following day felt better. On May 27, her left chest was again aspirated. The fluid had a sp. gr. of 1.020, was alkaline in reaction. There were 17 per cent. polymorphonuclear, 77 per cent. lymphocytes, and 6 per cent. of transitional and endothelial cells. No tubercle bacilli were found, and a guinea pig inoculated, was found normal in six weeks. A culture showed staphylococci, which was probably a contamination. Her condition remained about the same, the pains after eating continued and she vomited most of the food eaten. She was losing weight and strength rapidly. On June 10, the kidney function test showed an output of 45 per cent. of the dye in five hours. On June 15, there appeared a swelling of the left foot and leg, with tenderness over the femoral vessels. A diagnosis of thrombo-phlebitis was made. This condition gradually subsided. She was put on sedative and supportive treatment which was varied from day to day to meet the demands, but she seemed to be losing daily. On June 18, 3,600 c.c. of dark greenish brown fluid was aspirated from her abdomen. A mass, which lay transversely just above the umbilicus, could now be palpated in the upper abdomen. This mass was very tender. An enlarged liver could also be felt. On July 10, another x-ray study was attempted. There was no obstruction in the gastro-

intestinal tract, but the curve of the duodenum was pushed to the right, and the jejunum downward, suggesting a mass about the pancreas. Repeated urine examinations showed no sugar. On July 14, an examination of the stool revealed some undigested food particles, no blood, some muscle fibres. There was partial digestion of starch by fecal amylase in dilution of 1 to 320 and complete digestion of starch in dilution of 1 feces to 10 water. A pancreatic efficiency meal could not be retained.

Due to the fact that the patient was growing weaker, I decided to again open her abdomen on July 22. She had been seen by at least six internests and the consensus of opinion was that the process was a tuberculous one, yet with the x-ray findings and the bloody fluid in the abdomen, I suspected a pancreatitis. Under local anesthesia, a left para-median incision was made, the parietal peritoneum was markedly thickened, and an encysted accumulation of greenish fluid was found about the level of the umbilicus. The upper wall of this cavity appeared to be the omentum, which was rolled up and adherent to the anterior abdominal wall. The omentum was carefully separated and a cheese-like nodule about the size of a plum was found in the adherent omentum. Dr. Fishback, our pathologist, who was present at the operation, examined the material and expressed the opinion that it was fat necrosis, which opinion he verified a few moments later in his laboratory. This confirmed the diagnosis of pancreatitis. Further separation of the omentum and bowel led to an enlarged pancreas. I could palpate the pancreas between my hands. It was irregular in contour, hard and about twice the normal size. I did not deem it wise to further traumatize the tissues in order to see the organ but contented myself by placing a large drainage tube into the pancreas through the transverse mesocolon. This was the easiest approach since the transverse colon was pulled upward and adherent to the stomach and anterior wall. The patient had a stormy post operative period, and drained profusely from the abdominal wound. Her condition, during the first week, was critical, then she began showing some gain. On Aug. 6, she insisted on being taken home, although the drainage tube was still in position and there was profuse drainage. She was attended by a nurse in her home and in a few days her condition showed marked improvement. I removed the drain about three weeks after operation and the wound promptly closed. When she left the hospital she weighed about 85 pounds. She gained rapidly in weight, was ravenously hungry and food caused her no distress. On May 5, 1925, she weighed 155 pounds. She had had no recurrence of pain, her bowels moved daily and she felt perfectly well. A sugar tolerance test was taken on this day. Her fasting blood sugar was .137. The urine negative to sugar. She was given 120 gms. of glucose and after one hour her blood sugar was .312, the urine contained sugar. After two hours, her blood sugar was .400, sugar in urine. After three hours, blood sugar .382, sugar in the urine. After four hours, blood sugar .276, sugar in the urine. This would indicate that her internal pancreatic function was considerably impaired.

I offer this case record, as evidence in my contention, that acute suppurative pancreatitis can occur; that the diagnosis is extremely difficult, even on the operating table. The diagnostic essentials can be readily obtained by careful scrutiny of this history.

The treatment of acute pancreatitis can be considered from two angles—prophylactic and active. It is highly important that any inflammatory process, especially within the abdomen, be eradicated in order to prevent attacks of acute pancreatic inflammation, especially so, when mild attacks might indicate pancreatic involvement. Truly, here, the prevention of such a treacherous malady as acute pancreatitis is most desirable.

When the pancreas is once involved, the question arises as to when it should be explored. As previously stated, many of these cases recover, untreated and undiagnosed. If the abdomen should be opened for the removal of a diseased appendix or gall bladder and the pancreas is found swollen and edematous, I believe it good surgical judgment to place a drain down to it, either through the gastro-hepatic or gastro-colic omentum. This will drain the peripancreatic tissues and in case of rupture of the organ, prevent dissemination of the infection. If the pancreas is found much enlarged, especially boggy, or if an abscess is present, the drainage should be placed into the pancreas or abscess, as the case may be. Cofferdamming the pancreas with gauze or rubber tissue, at times, may materially assist in preventing the spread of the infection and provides more liberal drainage.

The conclusions which I should like to summarize for you are as follows:

1. Acute pancreatitis, either catarrhal or suppurative, is a pathological and clinical entity.

2. Acute pancreatitis is usually secondary to some inflammatory process, often intra-peritoneal. It may be a complication of acute parotitis or one of the acute infectious diseases.

3. Most of these cases recover without surgical interference, in so far as the pancreas is concerned.

4. The presence of pancreatitis should be suspected in many dyspeptics who have pain in the left upper abdomen or who may be suffering from appendicitis or cholecystitis.

5. In many instances the diagnosis of acute pancreatitis can only be made on the operating table, by observing the presence of fat necrosis and subsequently exploring the pancreas.

6. The pancreas should be explored more frequently when operating for cholecystitis or appendicitis or in those individuals who have complained of frequent attacks of acute dyspepsia.

7. Drainage of the pancreas or peripancreatic tissue in acute pancreatitis, will result in many recoveries.

DISCUSSION

Dr. Mather Pfeiffenberger, Alton: Dr. Wolfer's paper was very complete and very interesting. It brought to my mind two cases of acute pancreatitis. One case I saw several years ago. The patient had severe pain and was intensely jaundiced. At operation gall-stones were found and also a carcinoma at the head of the pancreas. The patient recovered from the shock of the operation and did fairly well for the first two days, then suddenly developed this severe pain and vomiting and went on to a rapid death from acute vomiting. The other case is more recent. A diagnosis of gall-bladder disease was made before operation. On entering the abdomen I was somewhat surprised to find it contained a bloody fluid. On inspecting the head of the pancreas there were digested plaques over it and over the visceral peritoneum. After removal of the gall-bladder this patient went on to recovery. The subject was so new as far as I was concerned, that I was interested to hear Dr. Wolfer's presentation.

Dr. W. F. Grinstead, Cairo: I have been unusually interested in this paper and I have asked myself some questions as usual. What is the lesson we get from this paper? What have we gained to take back home with us for practical purposes? I have this impression that in a general way we are expected to diagnose an acute pancreatitis. In our every day work we will not be able to make a diagnosis without opening the abdomen. Another thought occurred to me as I listened to this paper and that is, we are all removing infected gall-bladders. If I had a pancreatitis in my own abdomen which was from an infected gall-bladder, which I believe most of them do follow, I would not like to have my gall-bladder removed. Many years ago Will Mayo operated on me for an infected gall-bladder and before I went on the table I said to him: "I will thank you to leave my gall-bladder; even though it is diseased, for I fear I will need it for drainage." I am glad he did for I am one of the healthiest men you will find in a week's hunt. The best treatment is drainage and the best way to drain is through the gall-bladder. Let us think a second time before we take out an infected gall-bladder when we have a pancreatitis.

Dr. W. R. Cubbins, Chicago: The only point I want to make is that when you have an acute pancreatitis with stone, an accumulation of fluid is not uncommon. That accumulation of fluid is the result of infection. A bruit is very commonly heard over it. That bruit is accompanied by pulsation. I have seen two cases in which there was a distinct expansile pulsation in addition to the bruit. You could put your hand over it and see it expand. I opened two cases when I was not sure whether I was opening an aneurysm of the aorta or not. This expansile pulsation is distinct and comes from the aorta and from the numerous splenic and pancreatic vessels which go through it. You must make up your mind very definitely as to the presence or absence of one of these masses when you go into the abdomen, because that pulsation will be present. It has been present in two of my cases.

Dr. John A. Wolfer, Chicago (closing discussion): The type of case that I had in mind in presenting this paper is not the very acute hemorrhagic pancreatitis, nor have I in mind the chronic type in which I believe the treatment par excellence is drainage of the gall-bladder. I have in mind the subacute type of mild virulence. I believe many of these cases are overlooked and operated on for appendicitis, or gall-bladder disease and then go on and die. The plea I want to make is that when you find the abdomen full of bloody fluid you must think of pancreatitis. When you open an abdomen and find there is no torsion of one of the organs, think of the possibility of pancreatitis. Tuberculosis does not give a bloody fluid.

In regard to the treatment, I do not believe that drainage of the gall-bladder is going to help in acute pancreatitis because the ducts may be obstructed and will not drain the pancreas. If you put a drain through the gastro-colic omentum you drain the lesser peritoneal cavity of the more or less toxic fluid which is then not disseminated through the peritoneal cavity. When you find an acutely diseased pancreas, place a drain into the pancreas. I believe that in this way a large number of these cases will recover.

REFERENCES

Bosanquet, W. C.: Diseases of the Pancreas. Allbutt's System of Med., 1908. Vol. 4, Part 1, P. 280.
Eve, Sir Frederick: Acute Hemorrhagic Pancreatitis. Lancet, Jan. 2, 1915. P. 1.
Fitz: Boston Med. & Surg. Jour., 1903. CXL-VIII, P. 601.
Körte, W.: Surgical Treatment of Acute Pancreatitis. Annals of Surg., Jan., 1912. P. 23.
Lemoine & Lapasset: Bull. et Mém. de la Soc. Med. des Hopitaux, 1905. XXII. P. 640.
Neurath, R.: Wien Med Woch, May 6, 1911. P. 1217.
Robson, Sir Mayo: The Pancreas, Its Surgery and Pathology, 1907.

NON-MALIGNANT OBSTRUCTION OF The PYLORUS IN THE AGED*

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The symptoms of obstruction of pylorus in the aged following ulcer of the duodenum.

In our experience duodenal ulcer is more than four times more common than gastric, and as

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cancer rarely ever follows duodenal ulcer (3 in 1,000 cases) it is fair to state that the mass, if found, is inflammatory or due to cicatrices in or near the pylorus.

SYMPTOMS

1. A history of alternating indigestion always exaggerated in early spring or fall.

2. Pain of either a burning or aching character, which occurs three or four hours after meals and is relieved by alkalies or by taking food.

3. When the obstruction becomes greater, vomiting of large amounts of mucus, with increased hydrochloric acid, will be the result.

4. Marked secondary anemia, increasing weakness, loss of weight, and a dilated stomach frequently associated with gastroptosis, is the rule.

5. Occasionally a mass in emaciated cases can be felt; this adds to the difficulty in excluding cancer.

The absence of cachexia, the constant presence of hydrochloric acid, the absence of lactic acid and blood in the stomach contents, is of great value.

The 15 minute study of the gastric content is to be advised, and while in carcinoma hydrochloric acid is present occasionally, it grows less, and the Oppler Boas Bacillus, if found, is valuable. In some cases the differentiation is very difficult, and only close and thorough working out will determine the condition.

It is fair to state that, in a few cases, the surgeon may be in doubt after opening the abdomen.

In reporting the four cases we do so because we feel that many lives have been lost on account of hesitancy to advise surgery, or rejected because of possible malignancy.

In our work we have seen many cases with symptoms of obstruction at the pylorus, many due to pylorospasm of nervous origin, controlled by alkalies or sedatives, like atropin and bromide, others due to extra gastric causes, often to adhesions from gall bladder, or chronic appendicitis, etc. These cases are at times very difficult to diagnose and require careful and thorough study. This is especially true during the menopause in women.

In the past two years we have had four patients past 60 years of age whose condition demanded operation because of obstruction at the pylorous, due to duodenal ulcer.

Pyloric obstruction is the most common complication of duodenal ulcer, but pyloric obstruction in a patient of this age is usually looked on as due to cancer, for duodenal ulcer is regarded as a disease of younger people.

Duodenal ulcers occur with more than four times the frequency of gastric ulcers. Whether we accept or reject the theory that cancer of the stomach results from ulcer, it is well known that duodenal ulcers do not become malignant for cancer of the duodenum is very rare; 0.03% in hospital autopsys.

If the physical examination of the patient, the stomach contents or the X-ray findings, and especially the history, leads us to think that obstruction is due to duodenal ulcer, the outlook may not be so bad.

The histories of these four cases are of great interest to us for they tell the story of benign pyloric stenosis. Two of these cases were uncomplicated, one was complicated by gall bladder disease and gallstones, and one by sub-acute appendicitis. None had tetany.

Chronic ulcer causing obstruction is not featured by great local tenderness and pain. When these symptoms are present there is some inflammatory condition about the pylorus, and the pylorospasm may be relieved by alkalies and antispasmodic medication, and the patient encouraged to feel he is better.

Height of acidity is not a parallel of pain and the research of Porlow, Rehfuss, Corlson, Hamburger and Hardt show that with hyperperistalsis, pain occurs even when the acid is normal or low.

Even the giving of acid in a case of known open ulcer does not induce the typical pain.

Alkalinizing the stomach lessens the spasm and shortens the emptying time.

Obstruction at the outlet is followed by hyperperistalsis with hypertrophy of the whole active stomach wall.

By fluoroscope peristaltic waves may be seen twice as deep as normal and these continue until the stomach wears out or loses its tone.

Hypertrophy is associated according to Sippy, Rehfuss and others by hypersecretion of peptic juices and of mucus, and the stomach may contain 50 to 500 cc. of highly acid liquid.

Water brash, spitting of hot water, burning, splashing, is the common complaint.

At this stage the ulcer rarely bleeds. Munyon says with hemorrhage think of ulcer last.

Localized area of tenderness between 10th rib and naval is very constant, it may come and go with the inflammation of attacks.

Left to right peristaltic waves should be looked for. The patient has a long history of dyspepsia. His exacerbations come in Spring and Fall. November is mentioned in three of these histories.

The patient does not usually attribute his attacks to certain foods but says his stomach hurts worse when empty and food relieves him, but he tries diet and eliminates one food after another until he is down to skimmed milk with lime water.

They are constipated, and recognizing the constant association of pylorospasm with constipation, this brings up our second problem in differential diagnoses.

First, we must eliminate cancer in obstruction at the stomach outlet in old people.

Then we must think of the extra gastric diseases that may cause pylorospasm before we can diagnose duodenal ulcer. Constipation, appendicitis, gall bladder disease, cardio-vascular disease and neurosis may cause some of these symptoms, but with a good history, a careful physical examination, and the aid of the laboratory and x-ray, we may make a diagnosis and advise the necessary treatment.

All of the patients reported gave histories of long standing, compatible with duodenal ulcer. It was with difficulty, however, that this part of the story could be gotten, as the patient's more recent suffering overshadowed the early stages of the disease.

X-ray examination is of the greatest value, and if a filling defect on the stomach side can be excluded, helps to establish the diagnosis. It, together with a complete history, are the most valuable guides to follow in excluding malignancy.

However, even with this help there will remain cases that can only be diagnosed by exploration, and there are some cases where even at exploration the surgeon is still in doubt.

Case No. 2 is such a case. The fact, however, that she has regained her weight and is well at the end of two years, makes it fairly sure that the condition was benign.

Examination of the stomach contents has some value, but the main dependence must be placed in the history, and the x-ray examination.

Patients of this age, partially starved, are poor surgical risks, and some time and attention should be devoted to improving their general condition. A lack of fluids is the outstanding handicap, and this should be overcome by pushing fluids by mouth, giving small quantities of liquids at frequent intervals, the use of rectal drips hypodermoclysis and blood transfusion when indicated.

Gastric lavage once daily for a few days before operation serves to clear the stomach of food debris and also accustoms the patient to its use if it should be necessary after operation.

The use of sterile foods for 36 hours before operation will render the stomach sterile and lessen the chance of contaminating the field.

Elderly people are usually good subjects for local anesthesia, and a good part of the operation can be done under this, supplemented if necessary, by light gas-oxygen.

Where the stomach is large and atonic it is perhaps advisable to make the gastro enterostomy opening a little large, so that if the stomach regains its normal tone and size, there will be no shrinkage of the stoma.

Gastric lavage is indicated at the end of 24 hours if there is vomiting or dilatation of the stomach, and in this type of case will be frequently necessary.

Gastric tetany, which sometimes occurs in patients with dilated stomachs, did not occur in this small series.

Careful study of elderly people with pyloric obstruction will show that in the majority of cases the obstruction is due to the end results of duodenal ulcer, and in these, gastro-enterostomy offers a rapid and permanent relief.

Case 1. G. E. M. Male. Married. Aged 60. Occupation, traveling salesman.

Admitted to the hospital November, 1923, complaining of gastric distress and vomiting. Patient had stomach trouble for many years. In early adult life he would have a gnawing pain in the stomach which he could relieve by eating a dry biscuit.

In 1911 he had recurrent attacks of this trouble. He said he was jaundiced and was said to have had bilious fever.

In 1917 present distress began with severe vomiting, the first evidence of vomiting, and he was unable to take food for four days. He has no pain, but feels as though the food did not pass out of his stomach and since 1917 he says the stomach fills with food three or four days and he becomes markedly distended and vomits for relief. He consulted Dr. J. A. Wither-

spoon in November, 1918, complaining of these symptoms and pain in the right side under the ribs. He was given Epsom salts and soda in small doses and an anti-spasmodic and was relieved of these occasional attacks until February, 1922.

He returns saying that for two or three months there has been less vomiting but a splashing in the bowels with no pain but soreness in the pit of the stomach.

Since February of this year, 1923, the condition has been progressively worse, vomiting more frequent and loss of 60 pounds in weight in the past 6 months. There is no blood in the stools. He does not allow constipation and there is no diarrhea.

He had typhoid in 1897, flux in 1900 and pneumonia in 1907.

Physical examination now showed a large man who had been fat but who had lost much weight.

The abdomen was soft, there were no hard tumors, the stomach could be seen first distended then rigid and showing active peristalsis slowly from left to right. There was no mass to be felt at the pylorus. The stomach contained fluid and would splash. Stomach contents showed no occult blood. Total acidity 90. Free H. C. L. 40. Lactic acid negative.

X-ray showed a large hypotonic stomach, duodenal deformity, large 6 and 20-hour retention.

At operation there was cicatricial scarring of the duodenum, with a high degree of obstruction. The appendix and gall bladder were normal.

A posterior gastro-enterostomy was done and the patient left the hospital in 2 weeks.

He is relieved of his symptoms and has regained a large amount of his lost weight.

Case 2. Mrs. D. H. W. Married. Housewife. Aged 60. Mother of three grown children. Entered the hospital June, 1922, complaining of burning in the stomach, vomiting for 6 weeks and great loss of weight.

There was no complaint of pain in the stomach.

She was first examined in 1918, at which time she complained of nervousness which she said had been present since menopause 10 years before. She also had attacks of loss of appetite and vomiting and at that time was taking only skimmed milk containing lime water. All other foods were vomited some hours later.

She says three years before she had a vomiting attack that lasted all night, and thirty years ago she had so-called neuralgia of the stomach.

Present history. Vomiting and burning in the stomach all the time and only relieved by opiate. She says her stomach feels like it had a coal of fire in it all the time. She has retained no food in 6 weeks, has lost a great deal of weight and had a large bed sore when she entered hospital.

Her former weight was 240 pounds. Physical examination: A very large woman, aged 60, great flaccid splashing abdomen with visible peristalsis from left to right, a mass in the upper right abdomen and localized tenderness on pressure.

Her stomach contents showed a large amount of peptic juice-food particles and high total and free hydrochloric acid with no blood. X-ray shows enormous stomach with few peristaltic waves and great dilatation of the first portion of the duodenum.

There was no filling defect in the stomach, there was 6 and 24-hour retention of great size.

Diagnosis, obstruction of pylorus due to duodenal ulcer.

She was given a transfusion of 500 cc citrated blood.

Operation showed a mass at the pylorus adherent to the under surface of the liver and gall bladder, producing a high degree of obstruction. It was impossible to say whether this was cancer or ulcer, but resection was considered indavisable under the circumstances, and a posterior gastro-enterostomy was done. Her convalescence was prolonged somewhat on account of her bed sore, but she left the hospital after a month and at present is in good health.

Case 3. Mr. T. B. T. Aged 68. Married. Commissary merchant. Entered hospital March 3, 1924, complaining of, 1, pain in upper abdomen before meals, 2, gas in the stomach, and 3, tendency in upper abdomen.

He had consulted us in July, 1923, having pain near cardiac end of the stomach. He had weakness and loss of 40 lbs. weight in 2 years.

The pain in the region of the heart was exaggerated by exercise and relieved by rest.

He had vertigo. His blood pressure was 130/90. He was always constipated. He was thought to have angina. Nine months later he returned and gave this history:

His first trouble started some 6 years ago. He began having a dull pain in the pit of his stomach 3 or 4 hours following meals.

He was always relieved by the taking of food. He did not consult a physician for some time. Since onset he has been going to Red Springs during the summer, which always relieved him.

He had some rheumatism and all teeth were extracted two years ago. Since the beginning of this trouble he has been steadily getting worse. He has a great deal of gas on the stomach. The pain seems to be more regular than ever before and digestion is poor.

He had flu last January and sore throat and coughed some since.

X-ray showed hypertonic stomach, some dilatation, duodenal deformity, 6-hour retention and evidence of stasis at the ileocecal valve.

Duodenal ulcer and pyloric obstruction was diagnosed.

Operation. Notes, March, 1924. Stomach normal. Ulcer first portion of duodenum could be felt and seen. Gall bladder negative as was also the common duct. Gastro-enterostomy was done. Appendectomy—appendix was difficult to deliver on account of dense adhesions.

Recovery.

Comment. Old chronic obstructive ulcers do not cause so much pain. This old gentleman had appendicitis also and this confused the picture.

Though his obstruction had been going on some years

it was not so complete as to cause great dilatation of his stomach or stasis.

Case 4. Mr. G. H, B. Aged 64. Married. Sheriff. Was first examined March, 1924, complaining of burning in pit of stomach, spitting up hot water. Worse about 9 or 10 o'clock at night with great deal of gas. Taking food relieves him.

His present attack started in November, 1923, when he says he was poisoned by eating fish and was in bed for a month. During the previous summer he had canvassed his county, eating different foods at different places every day and vomiting for relief every night.

Three years before this he was operated on for left inguinal hernia, which was supposed to have caused his indigestion and he was relieved for a while, but in a few weeks a large hernia occurred on the other side and the indigestion returned.

Hospital history: For past five months patient has suffered with almost daily vomiting. This occurs just after midnight. The stomach will seem to be full, burning with gas and heavy. This trouble comes on rather suddenly and patient thought it was due to dietary indiscretion, but when it persisted for over a week he became concerned. He has taken soda water to relieve himself and it seemed to help, but nothing gave any permanent benefit. In five months he vomits regularly, skipping only two or three days. He sometimes sticks his finger down his throat to provoke vomiting.

X-ray showed large dilated stomach, increased peristalic waves, stomach pulled to the right, no duodenal cap was seen.

There is an indentation on the right side of the pylorus which we take to be pressure from the gall bladder. No gall stones are shown on the plate. There is a large six hour retention with typical blunting of the pylorus. This is shown well in one of the films.

Operation. Notes, April 1, 1924:

Right rectus incision, showing scar tissue in first portion of the duodenum producing a high degree of obstruction. Gastro-enterostomy. Gall bladder was very large and contained large stones lodged in the cystic duct, gall bladder tense and apparently contained fluid.

Gall bladder aspirated and purulent material obtained, large stone released and several smaller ones, and tube introduced into gall bladder.

Patient is recovering.

DIAGNOSIS OF ASTHMA*

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The frequency with which patients appear for examination with a history of attacks of dyspnea and cough, either chronic or paroxysmal, or in combination, brings up the question of asthma. Have they true bronchial asthma or are their respiratory symptoms a secondary manifestation of some other pathologic conditions which is less apparent to them? It is so frequently found that errors have been made in the interpretation of symptoms and signs exhibited by this class of patient that a review of the more common errors and difficulties arising in diagnosis might be of interest.

It is not infrequent to find true bronchial asthma in tuberculosis sanitaria with an erroneous diagnosis of chronic pulmonary tuberculosis. Many have been subjected to repeated nasal surgery with the idea that the nose is the seat of their dyspnea.

In order to differentiate from other conditions we must assume some criterion upon which to separate the true asthmatic from the symptomatic one. For this purpose we will define bronchial asthma as an acute or sub-acute exacerbation of dyspnea and cough occurring in one more or less dyspneic and wheezy all or part of the time. The attacks of dyspnea are mainly expiratory but may be both expiratory and inspiratory. The pulse is not greatly elevated, temperature is normal or only slightly elevated, and some degree of cyanosis is usually present. Hypodermic administration of adrenalin usually affords temporary relief.

The respiratory symptoms, especially the dyspnea, of early cardiac decompensation are frequently confused with asthma and of these cases mitral stenosis of low grade seems to be most often the cause of the decompensation. The early passive congestion of the lungs, due to interference in the pulmonary circulation, with its resultant cyanosis, dyspnea and cough, occur on slight exertion, or upon reclining, without any other apparent sign of cardiac decompensation. The physical findings in the chest, mainly auscultatory, resulting from the passive congestion and inevitable associated bronchitis, are often similar to those of asthma. However, in this type there are usually moist rales at the basis of the lungs posteriorly not found in asthma, and a careful study of the heart will always reveal transverse enlargement, usually to the right, a globular dullness of the left auricular area, possibly a presystolic thrill over the left ventricle, and always a presystolic rumble over a small area above the apex, not transmitted in any direction and easily overlooked or passed as merely an impure first tone. Signs of de-

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compensation in the greater circulation, as edema of the ankles, may be entirely absent.

Primary myocarditis, without organic valvular lesions, during early decompensation with slight or no secondary mitral regurgitation, sometimes produces dyspnea and physical signs in the chest simulating asthma as a result of passive pulmonary congestion and bronchitis. If it does, edema or anasarca of other parts will probably be found. The area of cardiac dullness is usually widened, especially to the left, and there are irregularities in the rate and rhythm, and often inequality of systolic contractions. The tones are soft and muffled. We must, however, bear in mind that long standing asthma with its secondary emphysema eventually produces myocardial weakening and decompensation, and that the two may co-exist. It is nevertheless important, mainly through careful history-taking, to determine the pre-existence of the asthma, for the relief of it is helpful in reducing the strain on the heart.

Nephritis, acute or sub-acute in type, but more frequently of the chronic interstitial variety, may cause paroxysmal dyspnea suggestive of asthma. In the former type urinalysis shows abundant albumin and granular, pus, or blood casts, making the differentiation easy; but in the interstitial type, with little or no albuminuria, a few hyaline casts and low specific gravity are of importance, especially if there is the usual accompanying hypertension. The physical signs in the chest are usually less marked in proportion to the discomfort of the patient in nephritic dyspnea than they are in asthma.

In cases of long standing renal disease and hypertension, cardiac decompensation, usually on account of myocarditis, eventually results, and the nocturnal dyspnea and whistling rales throughout the chest may closely simulate asthma, but the physical findings above described and urinalysis will always serve to differentiate.

Emphysema, either of the rare primary variety, or the type acquired through occupation, whooping cough, or chronic bronchitis, usually produces cyanosis and dyspnea on slight exertion, and, less frequently, attacks of dyspnea and cough. The large chest, out of all proportion to the rest of the body, the increased anterior-posterior diameter, the expiratory fixation, abdominal breathing, and the long, soft, expiratory murmur on auscultation are all characteristic of the emphysematous chest, but we must bear in mind that emphysema inevitably develops as a complication of bronchial asthma also, and eventually leads to cardiac decompensation, especially of the right heart. This has been previously considered under heart differentiation. The history of the asthma attacks, occurring as a first symptom with periods of freedom from dyspnea and cyanosis between attacks, is all important in diagnosis, the physical signs being of little value when cardiac decompensation appears.

Chronic bronchitis, regardless of etiology, produces permanent structural changes in the bronchial walls, and is often accompanied by attacks of dyspnea and produces physical signs not unlike those of bronchial asthma. There is still a division of opinion, whether these cases are to be classed as true bronchial asthma. A history is usually given of repeated attacks of acute bronchitis followed, at first, by complete recovery, but later by incomplete recovery and more or less cough and expectoration between attacks; or whooping cough or measles may date the onset of the chronic cough. After a variable time dyspnea and wheezing occur on exertion, or nocturnal, and these symptoms gradually increase in severity until the question of true bronchial asthma arises. In many the dyspnea is inspiratory and floroscopy of the chest indicates no distention of the lungs or fixation of the diaphragm, but in some it is expiratory or combined, as in true asthma. Most of the exacerbations occur during the changeable or winter seasons and are initiated by fresh colds or acute exacerbations of the chronic bronchitis. Are these attacks of dyspnea due to spasm of the bronchial musculature, and therefore with our present conception of the mechanism of asthma, real asthma; or, are they due to inflammatory occlusion of bronchioles already narrowed by chronic thickening? This very important point will be discussed later on.

Tuberculosis with frank clinical lesions rarely, if ever, should be confused with asthma, but occasionally chronic pulmonary tuberculosis and bronchial asthma co-exist, and only by a study of the sputum and by careful radiography can we be sure. This should be done as routine in all cases. Where error is made in diagnosis of this combination chronic bronchitis is most frequently considered the cause.

Other conditions, really producing tracheal or large bronchial obstruction, such as laryngeal polypi, aortic aneurysms, enlarged tracheal or tracheo-bronchial lymph glands, and mediastinal tumors may produce a nocturnal or effort dyspnea, but the usual auscultatory signs of asthma are absent. The same is true of the panting seen in hysteria.

It is possible, therefore, by careful history and physical and laboratory examination to separate the true asthmatic from the symptomatic one, due to other diseases above mentioned, with the exception of the bronchitis group, which will be discussed later. Symptomatic asthma is usually relieved, partially or entirely, by management of the underlying cause, but the true asthma must be further studied, if anything, more than temporary relief, is to be offered.

In the light of our present knowledge of the varied causes of asthma, and of allergy as applied to the mechanism of asthmatic paroxysms, it is possible in most instances to produce some degree of relief that is more permanent than that afforded by the time-honored adrenalin, atropin, potassium iodide, asthma powders, medicated cigarettes, etc.

For reasons not at present known, certain individuals become sensitized to some protein, that is, in these individuals further introduction of this protein into the body in sufficient dosage causes an internal disturbance known as allergy and, in asthmatics, outwardly expressed as an attack or exacerbation of bronchial asthma. How and why this sensitization arises in only certain individuals cannot at present be satisfactorily explained.

For purposes of the study of asthma, the proteins capable of producing these disturbances may be roughly divided into four groups, viz.: pollen protein, animal emanations, food proteins and bacterial proteins. The results with pollen proteins are most striking and will be discussed first.

Those sensitive to pollen protein usually give a history of asthma occurring each year, beginning at a fairly constant time and lasting a constant period, and often of preceding or coexisting hay fever. Many have, by experiment, found that ocean voyages or temporary migration to different climates have averted their attacks. It is therefore apparent in this group that season and location is important in the production of their disease. A few occur late in June or early in July, when the grasses and trees pollinate; a larger number occur in late August or early September when rag weed, golden rod and other weeds and trees pollinate. The time of occurrence gives a clue to the pollens to be considered and I have found most of the early type to be due to orchard grass, June grass, timothy or red top; and most of the later variety to be due to rag weed.

The tests for sensitization may be carried out by making small scarifications, as is done for smallpox vaccination, on the ventral aspect of the arm and forearm or on the thigh where the skin is thin and free from hair, and putting a drop of each of the solution of protein to be tested on a scarification, leaving one as a control. Within ten to forty minutes, usually about fifteen minutes, a blanched wheal with pseudopod-like projections appears and gradually enlarges to the size of a dime or quarter on one or more of the scarifications and represents sensitization of the patient to those proteins. Usually several react, there being one or two large major ones and several minor reactions, caused by pollens of grasses, weeds or trees, belonging to the same botanical family as the ones producing the major reactions. Desensitization may be accomplished by hypodermic administration of proper dosage of the causative proteins at proper intervals and complete or in some cases partial freedom from asthma can be assured for the coming season in most instances.

In the next group, animal emanation, horse dandruff, chicken feathers, and cat fur seem the most common offenders. The history is sometimes clear and directs one's attention to the proper protein or group, but it is also often very misleading. For example, a young lady developed moderate asthma attacks, always in the daytime, regardless of season or climate, and thought it usually occurred when outdoors among the trees regardless of the stage of foliage. Upon further questioning, however, it was brought out that when among the trees she was horseback riding, and at no other time had close contact with horses. Cutaneous tests proved her nonsensitive to tree or grass pollens but moderately sensitive to horse dandruff and densensitization caused complete relief upon further rides.

In another case severe asthma attacks developed in a young housewife about one year

after marriage. No etiology could be brought out by history until it finally occurred to the patient that the attacks seemed to occur during the periods when she had company. Further questioning brought out the fact that her usual bed was given up to the visitors and the day bed occupied by the patient. A combination of feathers was used in this bed. Tests showed the patient sensitive to chicken feathers and desensitization has caused complete relief now for a period of two years.

It has been my practice therefore to test all for sensitization to these proteins because of the frequent misleading history.

The study of food protein sensitization as a cause of asthma is even more discouraging unless a fair history or a careful study of the diet in relation to the attacks gives some clue to the etiological protein. Otherwise one is confronted with the task of systematically testing out all the food proteins now available, of which there is a vast number, causing a hardship to the patient with no fair assurance of success. It is, however, in my opinion indicated in severe asthma where all other causes than foods have been eliminated.

The study of the asthma associated with colds and chronic bronchitis, which makes up a fair proportion of cases seen, is very interesting. Some may be shown to be allergic in type, presumably resulting from death of a large number of bacteria during acute exacerbations of their infections, the bacterial protein thus loosed entering the circulation and causing the allergic reaction expressed as asthma. The preparation of a vaccine from the washed sputum in these cases makes a protein solution available for desensitization, and in many instances there is reduction or relief of the asthma when this is done. But some of these cases are probably not based on allergic bronchial spasm but are due to occlusion of previously and permanently narrowed tubules, resulting from chronic inflammatory changes; at any rate, they cannot be shown to be spasmodic by positive skin sensitization tests. Nevertheless in these also the vaccine is of value, because, aside from its desensitizing properties, it ofttimes results in improvement of the bronchitis, decrease of the sputum and general improvement in health, overwhelming the bronchial flora to a varied degree in the same manner as vaccines act when used for other purposes. That some of these are allergic may be judged from the occasional asthmatic reaction resulting from too large an initial dose of vaccine.

Other foci about the respiratory tract as sinusitis, ethmoyditis, etc., must be investigated and drained or removed as possible sources of bacterial protein.

When the true asthmatic has been differentiated from conditions simulating it, secondary to other pathology, and when we have through this general scheme made an effort to arrive at a diagnosis as to etiology, either on the basis of protein sensitization or chronic bronchitis, there will still remain a small group which seems not to fit anywhere as regards specific treatment; and it is this group that will furnish the material for further investigation of the etiological diagnosis of asthma.

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THE PRODUCTION OF URINARY CALCULI BY THE DEVITALIZATION AND INFECTION OF TEETH IN DOGS WITH STREPTOCOCCI FROM CASES OF NEPHROLITHIASIS—SUMMARY OF RESULTS*

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Infection is regarded as a common cause of calcification in tissues, but the hypothesis that certain microörganisms which infect many may have peculiar power in this respect is not generally believed. It was suggested to me during experiments with a streptococcus isolated from an excised piece of muscle in a case of calcifying myositis. This strain was peculiar, in comparison with strains of streptococci from the more common forms of myositis, in that it not only produced marked lesions in the muscles of rabbits when injected intravenously, but also produced very early precipitation of calcium salts in the lesions[1]. The etiologic relationship of streptococci to the formation of gallstones was demonstrated by me a number of years ago in experimental cholecystitis produced by intravenous injection of streptococci from cholecystitis in man[2].

During the preparation of immune serums, in

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which repeated intravenous injections of dead streptococci having different localizing powers were made, numerous concretions were found at necropsy in the calices and substance of the kidneys of the sheep injected with a pyelonephritis strain; no other lesions were found.

In a series of experiments in which nephritis followed the devitalization and infection of teeth in dogs with a staphylococcus from a case of nephritis, one dog developed pyelitis and cystitis, with marked calcareous deposits in the adherent exudate in the pelvis of the kidney and in the bladder[3].

On the basis of these observations it was believed to be worth while to attempt to produce urinary calculi in dogs by creating foci of infection around the teeth with organisms isolated from the urine and foci of infection in persons suffering from nephrolithiasis, thus simulating the conditions so often present in patients. A large number of experiments were performed, in collaboration with Dr. Meisser, and I wish here briefly to summarize the results obtained.

RESULTS IN THE NINE CASES STUDIED

Owing to the numerous instances of beneficial effects in other diseases from the removal of foci of infection and to the results obtained in our first case, the tonsils were removed and infected teeth extracted in the other patients studied. The extracted teeth and extirpated tonsils afforded us opportunity to obtain proper cultures for experimental studies.

All of the patients studied were men. Their ages ranged from thirty-three to sixty years. All were suffering from nephrolithiasis, had had typical renal attacks of from three to twenty years' duration, and the interval from the last attack to the time of our study ranged from two weeks to nine months. A history of acute infection which appeared to be a factor in the genesis of the urinary symptoms was obtained from three of the patients. Cultures were made from the urine of five of the patients. From three of these urines streptococci, usually with staphylococci and colon bacilli, were isolated. Foci of infection were found in the teeth or tonsils of all. The number of pulpless teeth showing periapical infection varied from one to seven in each patient. Most of the infected teeth had been rendered pulpless many years prior to our study. The teeth of dogs were infected with cultures from teeth, tonsils, and urine of one patient, from teeth and tonsils of two, from infected teeth only of four, and from tonsils only of two.

Twenty of the thirty-four dogs used in the experiments developed calculi and other lesions in the urinary tract, readily visible at necropsy. Twenty-six (75 per cent.) revealed microscopic calculi in the medulla of the kidney, and twenty had localized areas of active cellular infiltration in the medulla. Thirty dogs (87 per cent.) revealed either calculi or localized lesions in the medulla, or both. Streptococci or diplococci were demonstrated in, or adjacent to, lesions in the kidney of sixteen dogs, all of which showed active focal lesions on microscopic examination. Positive results were obtained in eight of the nine cases. In the negative case the teeth of only one dog were infected.

Th duration of the experiments yielding positive results was one month in two of the dogs, from two to three months in eight, from three to six months in twelve, from seven to eight months in six, and ten months in two. The duration of the four negative experiments was only eleven, fifteen, thirty and forty-five days, respectively, because of death from distemper.

The number of dogs whose teeth were infected with cultures from the patients varied from one to twelve in each case. In two cases only one dog was used, in three cases, two dogs, in two cases, four dogs, in one case, six dogs, and in one case twelve dogs were used. The teeth of eighteen dogs were inoculated with cultures obtained from infected teeth, six with cultures from tonsils, and ten with cultures from the urine. Twenty of the dogs were anesthetized and fourteen died of intercurrent infection or as the result of the induced focal infection.

In nearly all instances cultures from the pus found in the pulp chambers, which showed many streptococci and leukocytes in smears, yielded streptococci resembling those inoculated, usually with small gram-negative bacilli. This was true alike of the three cuspids infected at the time of the operation and the one cuspid in each dog which was merely devitalized and sealed in a sterile manner.

The localizing power in rabbits of the streptococcus from the teeth was tested at the end of each experiment in sixteen of the thirty-four dogs.

Forty-two rabbits were injected. Focal lesions

were found in the medulla of the kidneys in twenty-one. Lesions in other organs were rarely obtained. Five had lesions in the periosteum opposite the roots of the incisors, three in skeletal muscles, three in the myocardium, two in joints, one in the gallbladder, and one had ulcer of the stomach.

Of the sixteen dogs from whose teeth cultures were made and injected intravenously into rabbits, ten, representing four cases, showed microscopic evidence of active focal lesions in the medulla of the kidney. Of the twenty-eight rabbits injected, twenty-one developed focal lesions in the medulla, and seven showed no changes. The remaining six dogs, representing four cases, showed no microscopic evidence of active lesions in the kidney, and all of the fourteen rabbits injected remained free from lesions in the kidneys.

Streptococci resembling those inoculated into the teeth were isolated from the urine at necropsy in fifteen of the twenty-three dogs in which cultures were made, from the kidney in seven of twenty-seven dogs, and from renal calculi in three of six dogs. The positive cultures from the urinary tract were all obtained from dogs whose kidneys showed active lesions on microscopic examination. The primary cultures of the streptococcus from the urine, kidney, or calculi of five dogs, representing three cases, were injected intravenously into sixteen rabbits. Of these eleven revealed localized lesions in the medulla of the kidneys, while five remained free from lesions.

The staphylococcus which was isolated in small numbers from the urine of our first patient, and from several stones and some of the teeth of the dogs, always failed to localize in the kidney or intravenous injection into rabbits and was not demonstrable in the areas showing beginning stone formation.

The strains of streptococci from the different cases with which positive results were obtained were much alike. All produced small, rather dry, nonadherent green colonies on blood-agar plates; all were of a low grade of virulence, and produced marked acidity in glucose broth.

The lesions in the kidneys of rabbits following intravenous injection were similar to the active lesions in the dogs. They were not numerous, and not necrotic, and were nearly always small and limited to the medulla. Those following the injection of the urine cultures were the more pronounced. By placing thin pieces of fresh tissues immediately into solutions of neutral red, and by treating sections of the fixed tissues with nitrate of silver, it was found that deposition of lime salts occurred in lesions in the kidney, and in a few instances in lesions of the myocardium, as early as forty-eight hours after injection. Microscopic examination of the kidneys of the dogs showed three main types of lesions, sharply circumscribed areas of leukocytic infiltration between the collecting tubules, more diffuse areas of round-cell infiltration, and deposits of exalate crystals or amorphous lime salts, with little or no surrounding cellular infiltration. The number of bacteria in the lesions was always small; long search was often necessary for their demonstration. They were never found in normal tissue remote from lesions, nor in the kidneys of ten dogs in which localized areas of cellular infiltration were absent and in which the areas of lime deposits had healed. Sections of other viscera in some of the dogs that had stones were uniformly free from changes.

CONTROL EXPERIMENTS

Besides the twelve control dogs in our first case, we have studied the results in twenty-three additional dogs whose teeth were infected with cultures of streptococci or staphylococci from sources other than nephrolithiasis, and which were kept under the same conditions with regard to diet, and so forth, as those inoculated with the nephrolithiasis strains. Areas of rarefaction around the apices of the infected teeth from which the inoculated organisms were recovered were found in most instances. Five of the thirty-five animals revealed calculi and lesions of the medulla of the kidneys. The calculi were small and situated chiefly in the medulla or calices. Sections revealed small localized areas of infiltration and areas of lime deposits in the medulla, with little or no cellular infiltration, in which diplococci were demonstrated. Since the organisms inoculated into the teeth of these dogs had no affinity for the kidney, it was thought that the small calculi found in this series were of spontaneous origin, and that calculi in dogs may also be due to infection. Through the kindness of Dr. Hardenbergh we have had opportunity to test this hypothesis experimentally and are able to include, as a further check on our experiments, the result of this routine examination of dogs kept under similar conditions during the course

of our study. Of 433 dogs examined, fifty (11 per cent.) had urinary calculi. In most of these the calculi were small, flat and loosely adherent to the mucous membrane of the calices. The gums around the teeth of many showed varying degrees of infection. Urinary calculi were not found at necropsies performed by one of us on 581 dogs over a period of ten years. According to Hutrya and Marek[4], calculi were found in only twelve (0.38 per cent.) of 3,301 dogs examined at the Dresden Pathological Institute. The experience of others indicates a general low incidence of this condition in normal dogs.

The experiments to determine the etiology of spontaneous calculi in dogs consisted of culturing the medulla of the kidneys containing calculi, and the washed and crushed stones, of testing the localizing power of freshly isolated cultures on intravenous injection in rabbits, and of inoculating the teeth of dogs with the organisms isolated from the induced lesions in the kidneys of rabbits. Pure cultures of streptococci were isolated from the medulla of the kidney or from the stones of each of five dogs showing spontaneous calculi. One of these produced hemolytic colonies on bood-agar plates, one, indifferent colonies, and three, green coloniees. The indifferent strain was injected into four rabbits, and one of the green-producing strains into one rabbit. All remained well and free from lesions, and the strains were lost. One of the remaining green-producing strains produced lesions of the medulla of the kidneys in two rabbits injected. The primary culture of the third green-producing strain isolated from the stone of one of these dogs produced lesions in the medulla in three of four rabbits, and one of two dogs injected intravenously. The strain from one of the positive rabbits produced lesions in the medulla of the kidneys of two rabbits, and the strain from the positive dog, in the one rabbit injected. Cultures from the kidneys showing lesions were positive in every instance, and negative where no lesions were found. Cultures from the blood were negative in all. The strain isolated from the kidney of this dog, culturally and morphologically identical to the one isolated from the stones, was without effect in four rabbits injected. No lesions were found, and cultures from the kidneys and blood were sterile.

The hemolytic streptococcus in the third subculture was injected intravenously into two rabbits. Both developed lesions in the medulla of the kidneys, and cultures of the urine and kidneys yielded pure growths of the streptococcus injected. This strain produced lesions in all of three rabbits injected. The culture from the kidney of one of these was then injected into two rabbits. Both died, and marked lesions of the kidneys were found at necropsy. The culture from the kidney of one of these in turn was inoculated into the teeth of two dogs. They lost weight, but seemed well six months later, when they were anesthetized. Both had developed calculi in each kidney, demonstrable by the roentgen ray. Sections revealed localized areas of lime deposits and circumscribed areas of relatively slight round-cell infiltration in the medulla, in which diplococci were demonstrable. The streptococcus inoculated into the teeth was isolated from the teeth and from the kidney stones and urine in pure culture at the end of the experiments. The cultures from the stones and kidneys produced lesions in the medulla of the kidney in all of seven rabbits injected intravenously, from which the streptococcus was isolated in pure culture in every instance. The blood was sterile in six and contained the organism in one.

Four control dogs placed under identical conditions during the course of the experiment were found free from calculi.

Since the work on lithiasis was done, the effect that the ulcer streptococcus might have when inoculated into the teeth of dogs was studied by Dr. Meisser in a large number of dogs which in other respects were kept under similar conditions. In some of these, ulcer of the stomach was found, which was proved to be due to the streptococci inoculated into the teeth, but in no instance were renal calculi observed.

SUMMARY AND DISCUSSION

The streptococcus inoculated into the pulp canals was isolated from the infected material in the root canals or the periapical tissues of the pulpless teeth at the end of each experiment. This was true alike of the three cuspids which were devitalized and infected at the beginning of the experiment and of the cuspid which was devitalized but not infected. In some instances secondary infection by a small gram-negative bacillus, and more rarely by a staphylococcus, had occurred. The streptococci in the teeth in which secondary infection had not occurred were espe-

ci lly numerous at the periphery of well formed granulomas and where the bone was being absorbed. The findings around the teeth were similar to those following the devitalization of teeth in persons, as practiced in dentistry: the infected teeth became discolored, but remained firmly in place in the alveolar sockets; the infection caused rarefaction and absorption of bone in the periapical region without swelling, pain, or tenderness, and the cellular infiltration and distribution of the bacteria of well formed granulomas were also similar[6]. The experimentally produced chronic foci, aside from being the source of the streptococcus which tended to localize electively in the urinary tract, appeared to have a general deleterious effect. Some of the dogs lost markedly in weight and became more susceptible to intercurrent infection. This was particularly true in those in which unusually large areas of infection around the teeth had developed and in which the renal calculi were large. This finding supports the interpretation by Osborne and Mendel[6] of the infectious origin of urinary calculi observed in rats (eighty-one of 857) fed on a diet deficient in fat-soluble vitamins.

It is not clear why the four dogs infected with the arthritis streptococci failed to develop arthritis. Active infection around the teeth was found in all. The streptococcus from the pulp chamber in one of the dogs inoculated four months previously had retained its affinity for the joints of rabbits on intravenous injection. It would seem, therefore, that the joints of these dogs were not affected because of high resistance of these structures to invasion by this organism during the relatively short duration of the experiment.

Calculi or lesions of the medulla were produced in 87 per cent. of the dogs whose teeth were infected with streptococci from the urine, infected teeth, and tonsils of nine patients with typical nephrolithiasis. The duration of the experiment on the dogs in which the findings were negative was too short for stones to form. This is in sharp contrast to the findings in an equal number of dogs whose teeth were infected with strains from other sources, and to those of a larger series kept under the same conditions but in which the teeth were not infected.

The experimentally produced calculi were similar in physical properties and chemical composition to those found in nephrolithiasis in man. The number and size of the stones were often proportional to the duration of the experiment. The other findings in the urinary tract were also similar to those occurring in patients with this disease.

If albumin, pus and blood were present in the urine, there were only small amounts; and the lesions in the medulla of the kidneys were relatively slight unless ureteral obstruction from an impacted calculus occurred, when marked ascending infection developed, just as it commonly does in patients with partial obstruction of the ureter, and as produced experimentally in dogs by Keith and Snowden[7].

The streptococcus inoculated into the teeth of dogs was isolated from the kidneys, from some of the stones, and from the teeth at the end of the experiments, and its elective affinity for the urinary tract in rabbits was demonstrated on intravenous injection. The streptococcus from the teeth of dogs that showed active lesions in the kidneys had retained specific affinity for the kidneys of rabbits, while those from the dogs that showed no lesions or only healed lesions had lost this peculiar localizing power. The organism was found in the lesions in the substance of the kidney where crystallization and stone formation were beginning.

The results of our experiments and the clinical study by Keyser and Braasch[8], and others[9] indicate that the factor of focal and other infections should be given thorough consideration in the management of cases of nephrolithiasis. And may not a stone-forming infection account in part for the unusual prevalence of this condition in certain localities? The demonstration of the presence of the microörganisms precisely where precipitation and crystallization begin suggests strongly that the mechanism of the production of stone is largely a local process and that the reactions incited produce the physicochemical conditions necessary, such as the nucleus and organic framework, for the formation of calculi. The common occurrence, however, of unusually large numbers of calcium oxalate and other crystals in the urine and in the medulla of the kidneys of the dogs that developed calculi, and the loss in weight, suggest that more general effects of infection may also play a part.

The conclusion that primary urinary calculi are often due to streptococci which have elective affinity for the urinary tract and, it would seem,

specific power to incite the conditions necessary for their formation seems justified.

BIBLIOGRAPHY

1. Rosenow, E. C., and Ashby, Winifred: Focal infection and elective localization in the etiology of myositis. Arch. Int. Med. 1921, xxviii, 274.
2. Rosenow, E. C.: The etiology of cholecystitis and gallstones and their production by the intravenous injection of bacteria. Jour. Infect. Dis. 1916, xix, 527.
3. Rosenow, E. C., and Meisser, J. G.: Elective localization of bacteria following various methods of inoculation, and the production of nephritis by devitalization and infection of teeth in dogs. Jour. Lab. & Clin. Med. 1922, vii, 707.
4. Huytra, F., and Marek, J.: Special pathology and therapeutics of the diseases of domestic animals. London, Bailliere, Tindall and Cox, 1912, i, 1149.
5. Rosenow, E. C.: Studies on elective localization. Focal infection with special reference to oral sepsis. Jour. Dent. Res. 1919, i, 205.
6. Osborne, T. B.; Mendel, L. B., and Ferry, E. L.: The incidence of phosphatic urinary calculi in rats fed on experimental rations. Jour. Am. Med. Assn. 1917, lxix, 32.
7. Keith, N. M., and Snowden, R. R.: Functional changes in experimental hydronephrosis. Arch. Int. Med. 1915, xv, 239.
8. Keyser, L. D., and Braasch, W. F.: The etiology of urinary lithiasis. Internat. Abstra. Surg. 1922, xxxiv, 1.
9. Mayo, C. H.: Stone in the kidney. Ann. Surg. 1920, lxxi, 128.

THE RESPONSIBILITY OF THE MEDICAL PROFESSION TO THE RISING GENERATION*

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We are living in an era of preventive medicine. I venture to say that every individual in this room recognizes and appreciates the tremendous possibilities which lie in the application of preventive medicine to every day life and the attainments already made in the improving of health conditions in both cities and rural districts.

The question of modern health service with its control of communicable diseases, the reduction of infant mortality, the securing of good water supply and safe milk supply are fundamentally educational propaganda, and the best results are obtained through the personal touch of those who teach and those to be taught.

As we have proven in the field of preventive medicine that the results were in just proportion to the time, money and thought expended, so will we find without the educational and preventive measures we will continue indefinitely dealing with effects rather than underlying causes.

Especially applicable to we find this to the subject in question, namely sex and race hygene. It is only after many years of constant dealing with various phases of social hygene e. g. among the Indians under governmental control, dependent and pathological mothers and babies in the department of infant welfare, prostitutes as found in our moral courts, and venereal disease clinics, delinquents and perverts as found in our juvenile courts, that I find sufficient temerity to approach the medical profession on this subject and make an appeal for more concentrated effort along this line.

Let us consider some of the underlying causes of the great number of delinquents and dependents. The most important of these we find to be an inferior hereditary pattern. It has not been many years since one of the well known subjects for debate was "Environment vs. Heredity," and for a time it seemed that those having environment to defend found little difficulty in overcoming their opponents' arguments.

We are all familiar with reports from various philanthrophists who being so convinced thought that environment could overcome all hereditary tendencies, adopted children promiscously, without regard for the inheritance pattern from which they sprang, with the inevitable failures as a result. I have personally witnessed teachers suffer disappointment after having adopted Indian youths, with the idea that by giving them the advantages of their own children they would grow up equally intelligent and moral, only to see them at the age of puberty elope with a full blooded Indian and live happily in a tepee.

I mention this first because we need a transformation of our attitude toward the lesser evolved, the subnormal, the venereally infected, toward prostitution and promiscuity. We have adhered too strenuously to a standard for the highly evolved, failing to take into cognizance the fact that what is a crime for the elect is not for the irresponsible and unmoral, and until we can analyze and are able to comprehend more about hereditary traits and the social status of all these subjects of social hygiene, we are not approaching the most efficient methods of dealing with the soul's evolution of these girls and boys from the standpoint of their own social status. We are still clinging too tenaciously to the idea that any individual, no matter from what inferior hereditary pattern he may have sprung, who infringes on our social standard of equity, justice and right must needs be punished. We would consider it a sad commentary on our intelligence if it were suggested to us in the acquisition of knowledge, we were to be punished for every little mistake we made, and yet it is not

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wholly different in the attitude assumed toward many of our delinquents and other inferior intelligences.

The expansion of a consciousness is a very slow process and requires more deliberation of thought and understanding as to the methods of helpfulness than is manifested in the infliction of punishment.

It has been within only the last quarter of a century that the studies of heredity have given anything of real practical value. It has been found that only one per cent of the world's population has produced half of all the world's greatest men and women, and it has taken all of the remaining ninety-nine per cent to produce the other half. We are learning that most of the crime is traceable to very few families. Every one is familiar with the Jukes family, with its bad inheritance pattern. From one worthless couple sprang twelve thousand of the same type, who are being cared for at an enormous expense to the state in which they live, giving absolutely nothing in return. Against these we find the Edwards family, who have given to the world some of our best social servants, poets, statesmen, educators, doctors, lawyers, governors, mayors and presidents.

We should think of these things and realize that in supporting our state institutions we are caring for the products of poor inheritance strains, that is, paupers, insane, feebleminded and so forth, who come from a comparatively few blood lines. We should ask ourselves the same question as did the great English student of heredity, Professor Pearson, who some twenty years ago asked, "Why put all your money on environment when heredity wins in a canter?"

Hereditary transmission consists in giving again to the offspring the rudiments of the inheritance pattern that was received by the progenitors from their parents.

We pride ourselves in the idea that by teaching bodily hygiene and social measures for the care of the poor and neglected we are improving both the present and the coming generation, and yet under the light of the revived Mendelian theory as elucidated by Sieman and Barker, which reveals to us that, "the inheritance rudiments are not derived from the characteristics of the parents, but that characteristics of the parents develop under the influence of environment out of the inheritance rudiments, therefore environment can not make manifest in the individual anything except what is already potentially present within it, and the value of the individual as such differs from his value as a progenitor."

Because of the plausibility of this theory it behooves the medical profession to begin to think in terms of how simultaneously with our efforts along all lines of improvement, namely hygiene, sports, education, social service, public health, social legislation, and so forth, we can work out some scheme or plan wherein we devote equal precedence to the inheritance pattern through an increase of the most capable hereditary stocks thereby creating a permanent improvement of the race.

It depends on whether the capable or less capable supply the larger part of the rising generation, and it is found that in both European and American culture the fertility among the inferior is greater than that among the average capacity.

"The essence of extinction lies solely in the fact that a single individual produces few or no young from whatsoever cause; so far as the life of the race is concerned he has become extinct.

"Since one-third of our people, and we might add the one-third that includes the irreplaceable best hereditary stocks condemns itself to extinction through contraceptive measures and the increase of our people is relegated to the less capable stock, then we should search for means to encourage the best selection of the middle class and at the same time discourage the lower and wholly inferior which includes the insane, confirmed criminals, tramps, prostitutes, delinquents, dependents and all pathological persons, through legal regulations. To render pathological natures permanently harmless and prevent the reproduction of other miserable creatures which prove a burden upon civilization, should consciously become the goal of our endeavors.

"If good inheritance rudiments in sufficient number are to be preserved in the people it will necessitate the carriers of the best rudiments to exhibit as great fertility as do the carriers of inferior rudiments otherwise the superior types are irrevocably doomed. We might well consider it our responsibility then to inquire who are the parents of the rising generation."

The successes our breeders have achieved among plants and animals depend upon the most careful segregation of especially good and useful hereditary stocks.

Doubtless the degeneration of the cultured people of antiquity was due to a selection which led to the extinction of the capable hereditary stocks that had created the civilization and which were alone capable of preserving them.

Therefore in spite of the brilliant types attained by the civilizations of Greece and Rome their downfall was inevitable since care was not taken to maintain sufficient fertility among the superiors who were the real girders of civilization.

Since we are living in a country where the population consists of a great variety of racial stock in full knowledge that the inferior classes are far outnumbering the superior in their propagation, it is our bounden duty to attempt to promote interest in eugenics and race hygiene as applied to the promotion of human welfare. I am hoping that day is not far distant when we may see general biology and race hygiene stressed in our educational institutions and a practical application made which will insure the preservation and enhancement of our threatened civilization.

Since we have considered the most important element contributory to either the rise or fall of the race as being the hereditary pattern, the next in importance in the underlying causes for delinquency we find to be the manner in which we have, until recently, taught and dealt with the subject of sex.

I have come to the conclusion after reviewing the experiences with mothers and their problems with their children, (and I wish now to keep in mind we are dealing with an intelligent group and not with the subnormals heretofore under consideration) that the keynote to helping the youth to cling to the ideals instilled in them by their parents and living according to right principles, is from babyhood on through life to attain and maintain so close a bond of absolute confidence as can never be broken nor betrayed by either parent or child.

Upon close analysis we will find this will necessitate fine discrimination and judgment; I know of no field of knowledge so conducive to the consummation of this bond than a sane scientific spiritual presentation of sex principles. The pathos of the situation lies in the fact that our mothers have not been taught, nor are they being taught, and do not realize what is lacking in their training of children until there has been a break in the bond.

Our responsibility in this respect seems to me to be all the greater because parents have not been instructed; therefore it depends largely upon the physician and social worker to discharge this duty until greater numbers are prepared to teach. It is the duty of those of us who have acquired the knowledge to spread the laws of sex and the dangers of venereal disease before the people, so that the tragedies like those with which we are all familiar may become rare or impossible in the future.

It would be impossible to estimate the value of the medical profession should they hold in mind what they were originally considered to be, namely teachers and instructors. By so doing they would ever be alert as to ways and means whereby our younger generations may be taught self analysis, sex principles, scientific basis for marriage, and kindred fundamentals conducive to happier home relations. So thoroughly am I convinced of the efficiency of appealing to the impelling force from within an individual as against the compelling force of the law from without the individual that I venture to guarantee that more profound and lasting results will accrue from educational propaganda than by the law. The seeming immediate results to the contrary.

It would seem that since preventive medicine is uppermost in the minds of our health authorities, that all literature is flooded with subjects pertaining to sex that we are delving more deeply with the study of psychology, psychoanalysis, analysis of the emotions and their relation to biochemistry, that the opportune time has come when it is expedient that some of our master minds state the sex principle as a fundamental principle in nature, that it may be incorporated in the school curriculum as a scientific law, and in future generations be referred to on the same plane as the law of gravity and other of the established laws. By so doing the objection to discussing biological, embryological and physiological facts in the classroom, due to prudishness, will have disappeared and the minds of both men and women heretofore morbidly sensitive to sexual impressions will become normal.

When we review all sciences we find many time basic principles stated as theories only. We accept them because they give us a working basis, even though later on they may be exploded and supplanted by other theories. So for a moment

let us consider the sex principle as a primary principle which may be stated as "That principle in nature which impells every entity to seek union or harmonic relation with another like entity of opposite polarity."

In reviewing the four kingdoms throughout nature, namely, mineral, vegetable, animal and human, we observe a distinct line of cleavage dividing all energies into positive and negative departments. It would seem that between all positive and negative energies there is an inherent attraction, an irresistable impulse for union, and since everything known to man belongs to either the positive or negative departments of nature this underlying principle governs all things from the chemical atom to the intelligent soul. Just what this universal impulse may be in this most mysterious of natural processes has been an intellectual mystery that the best minds of the race have failed to solve. It is one and the same principle manifesting throughout the four kingdoms of nature, the specialization being immeasurably increased where it deals with the self conscious needs of the soul. It governs the increase of intelligence and the development of reason, morality and love.

It is evident then that nature has a purpose in creating this distinct line of cleavage throughout the four kingdom thus dividing them into positive and negative, male and female, man and woman. That purpose seems to be to attain an equilibrium between the positive and negative entities. Every thing from the unconscious mineral atom to the self conscious living soul is seeking an independent relation that is in harmony with itself. When the time comes when this principle is taught in our schools we will find our studies of chemistry, botany, zoology illuminated as never before, for we shall have correlated the entire scheme of evolution within one fundamental principle.

When self analysis and analysis of the emotions have been taught then sex, which is of profound interest to mankind, may be understood and dealt with sympathetically.

Until such time arrives when this subject is introduced in and becomes a part of the regular course of study, how may we best reach the greatest number of parents and so instruct them that they will be ready to answer the first questions of their children about physiological functions of the body?

From the interest manifested by the crowds visiting the department of social hygiene last summer at the county fairs throughout our state where an average of from three to four hundred passed through every hour, it would seem sufficient proof that the public wants to be instructed. Reports from the Illinois Social Hygiene League, and The American Social Hygiene Association, assure us of the profound interest manifested in all rural districts visited by them. From the trend of events then it would seem that we are obligated to work out this program.

I recall a lecture given by Dr. W. A. Evans of Chicago a few years ago who, while speaking on this particular phase of education, said: "In my judgment the venereal disease question is not exactly the same as the question of sex immorality, or sexual irregularity. My judgment is we will control venereal disease or repress it a long time before we will repress or suppress sexual irregularity. The questions are not parallel, and those who are in favor of supporting a program directed against the one should aid those who are in favor of a program directed against the other. They are companions in arms. I hope they will always work shoulder to shoulder. As a public man it is my judgment that we who have the public health question as our particular child will have solved our problem long before the other group will have controlled theirs."

While we have a keen appreciation of the importance of caring for those already diseased, rendering them non-contagious or cured, we must not become so engrossed in this phase of the work as to neglect the formulation of plans for the education of the rising generation.

In view of the fact that most of our educational films and lectures have combined sex talks with venereal diseases there seem to me a splendid opportunity among the smaller cities and towns throughout the state to establish venereal disease clinics and use them as centers for educational purposes. This is being tried out in some districts and while they may for the time being present some objectionable features they will be adjusted in time and will prove of inestimable

value as a distributing center for literature, films and lectures thereby awakening and informing a greater number of people then could be done by any other method. Thus serving the two-fold purpose of being advantageous to both the community and the medical profession.

In closing, I desire to offer the following suggestions for your serious consideration; Install a chair of social hygiene in our schools, especially normal schools where vast numbers of teachers are graduated yearly. Have instructors in physiology incorporate sex hygiene and reproduction in their lectures in high schools. Implore the universities to stress general biology from the standpoint of race hygiene. Urge the professors in both high schools and colleges to teach chemistry, botany, and zoology as to convey to the student mind that the same sex principle manifests throughout these realms as in the human kingdom.

Let us begin here and now working out some plan in the department of psychiatry whereby the babies and youths may be given some such thorough examination as that used in the Leopold-Loeb case for the purpose of detecting early signs and symptoms of degeneracy and institute treatment before they have committed some dastardly crime.

We do not hesitate in our communicable diseases to separate members of the family who are infected, and administer treatments. The same thing should apply only with added zest to those mentally diseased. Above all, let us strive to keep an open receptive consciousness toward all movements irrespective of the source from which they spring, and instead of condemning them without trial give them thought, and if they have the element of construction lend our assistance and endeavor to keep them within ethical bounds. Thus by keeping the receiving and giving powers of our great organization of medicine equally balanced we will continue to be known as a broad humanitarian movement noted for its anticipation of human needs and the administration of the specific remedy.

DISCUSSION

Dr. C. S. Skaggs, East St. Louis, Ill.: I do not know that I am ready to agree with the former speaker, in that education is the keynote of this problem. I sometimes feel that you might as well try to educate color out of the skin as sex out of the human race, and the more I study the problem the more I am in discord with that theory. I feel we are putting a bit too much on education. Educational work is a wonderful thing, and none of us are questioning it, but we have learned in recent years that there are some things education cannot do. I doubt if ever our sex or social problems will become Utopian by education. I think we must revert back to the home, to the family physician, to do much of this work, because people are not going to listen to you on these things who know you are not personally in touch with them. That is human nature. All of you know, who have studied this problem, that some of our greatest social workers are most highly endowed sexually personalities. Can you tell me how such a person can educate you to conduct yourself sexually, when they themselves are so sexually endowed, some of them on the borderline of perversion? Until we come to the point where you are going to recognize something about the soul of the individual, and that a man or women has a soul, you are not going to touch the sexual aspect. That has been my experience and I believe I have had enough contact with this work to make me believe this. We must quit dealing with generalities, and think of people as individuals.

Dr. Elizabeth B. Ball, Springfield, Ill.: Since this is the first opportunity I have had of hearing this paper, I do not feel in a position to discuss it as thoroughly as it deserves. It seems to me education is really the keynote of all these ideas and all this work. For this reason I want to refer to some things that have occurred in the past few years in my experience—some in the city of Quincy. Let us realize that people are not prepared for certain phases of this work. I remember we had a speaker on social hygiene from Chicago. I was working with the Y. W. C. A. at the time. She gave four lectures in the city, going to the factories at the noon periods, and lecturing to possibly 175 people in the afternoon and 300 or more in the evening. Everyone was delighted with the talk they had heard. The press commended it very highly, and everything went off beautifully. One year later when the W. C. T. U. was having a meeting, the secretary of the Y. W. C. A. asked why we could not have this same lecturer at the high school to talk to the assembly. This arrangement was made, and the lecturer came, gave a talk to the students in the high school, both boys and girls. At the conclusion of the talk, the principal of the school did not refer to the speaker or to the lecturer—simply made an announcement pertaining to the school work. Naturally we felt a little chagrined, and the speaker (a woman physician) asked him what was the matter. "You do not understand these things as I do. You do not realize that the mothers and fathers will come to me about this matter. You will be gone, but I am going to have to hear the criticisms." One of the teachers stepped up and congratulated the lecturer, and as we went down the aisle, the janitor came up to us and said, "That is one of the best talks we have had for years." The school

janitor usually knows everything that goes on in a school. That talk and the comments on it just spread around the city like wild fire. There was more than a general discussion. One doctor's wife said to me, "I am very much surprised at you. I understand you were on the platform that day. My little girl was in the audience. Do you mean to tell me you approve of anything like that?" I asked her why she did not approve, and she said, "I feel that is taking my rights as a mother away from me. I have given my little daughter instructions on these things; I have given her the instruction I think she needs." I finally got her to tell me what it was she disapproved of. She said she did not like those things to be discussed publicly, that she preferred to talk to her daughter herself. I said, "If you have instructed your daughter, she had no reason reason to be shocked by anything that was said at the lecture." While in the Department of Public Health, I went down to the southern part of the state to address a Farmers' Institute meeting. The principal of the high school asked me to give a talk on social hygiene. When I saw that audience, those poor undernourished children, with all sorts of physical defects, eyes, throats and everything under the sun, I decided that they did not need social hygiene so much as general hygiene. In practice, I think every physician has the same experience. It is a matter of education all through. We will have to have people who are prepared to do this work and do it properly, and give this information in the proper manner.

Dr. J. J. McShane, Springfield: There is no question but we have a great problem to solve. Something should be done to determine at a very early date the physical status of the child. I heard a doctor make a statement that at the time of birth he always obtained a specimen of the blood from the babe and from the mother for a serological examination and he reports that from 7 to 8 per cent. of the specimens taken gave a positive Wassermann.

Dr. R. V. Brokaw, Springfield: I cannot feel with Doctor Edmonson that the civilization of the human race is threatened. I rather favor the theory of the survival of the fittest. Nor am I so sure that our civilization is such a wonderful thing. From the biological standpoint I think there are a great many objectionable features about it. When I recall the great suicidal cataclysm into which the whole world plunged a few years ago, I am strongly inclined to feel that our boasted civilization is hardly more than a veneer. We express considerable regret about the passing of the great Nordics. I cannot but feel that if the Slav one day rules Europe, if the Chinaman one day dominates the world, they prove themselves to be superior and so deserve the triumph. I am much more interested to know what type of animal will dominate this globe after the age of man has passed. I mention this only to illustrate the importance of perspective in the study of any problem. I am not worrying about the girls and boys of this generation. I think they have more sense than many of us had; there is more freedom; they are more wholesome, and they certainly face life more squarely than we did. I wish we Americans had as much frankness as the Europeans in this matter of social hygiene. I am sure that our present prudery will pass in the natural biological development of the race.

Dr. Mabel Otis, Moline: I think it is too bad that the principal of our high school and the heads of families in Moline are not here. There is no question but what they are up before the jury and under condemnation by all of us. I am reminded of the Irishman who said that every fellow should holler for his native land, whether he was born in it or not. I think this paper most complete and convincing, and I think Dr. Ball's discussion was very true. I have served on the Board of Education, on parent teacher organizations and on the W. C. T. U. and I know whereof I speak when I say this path is fraught with difficulties. I am very free to confess that one of the greatest problems I have found was when I taught my children certain things, and had to stand by and wait for them to decide whether mother was right or whether the boys were right. Unless these ideals are emphasized in all branches, and unless our children are taught in infancy it is true that their knowledge will come through unclean stories. If we could talk to enough people, if the mothers and fathers could realize, if the teachers could see their part, their high responsibility, I believe the problem could be met in the proper way. I believe this is the greatest test. Unless our children are taught as we would like to have them, rationally and sensibly, it is better that it should be done in school rooms, in the proper and educational way.

Dr. June L. Edmonson, Chicago (closing): I appreciate beyond measure the stimulus of this discussion and am grateful for some of the points which have been brought out. I happen to be the mother of a 21-year-old boy myself. I had studied medicine and when my boy was five years old he was instructed in a scientific way concerning these matters and all during his boyhood I never lost his confidence. He was asked what was the thing most conducive to his stalwart manhood and replied "The ideas instilled in my mind in the confidential talks with my mother about every function of the body." We have the idea that we must talk to our girls at the time of puberty, but what about our boys? Every function of their body undergoes a change at that time and they should be given advice and instruction just as much as the girls. With regard to sex, I do not mean eliminate—I mean control. Sex is one of the biggest things in our makeup. There should be no secrecy, but there should be intelligent, scientific instruction to enable them to look at it with a sane viewpoint.

It might be well for those interested from the educational standpoint to read what Cornell University is doing along this line. There they incorporate a comprehensive series of lectures on sex hygiene along with the hygiene of all physiological processes. We hope that what one of our great universities is doing all will eventually do.

SARCOMA OF ORBIT—REPORT OF CASE WITH PHOTOGRAPHS*

G. S. DUNTLEY, M. D., F. A. C. S.
MACOMB, ILLINOIS

Eyes—Vision, right 20/100, left 20/30; the the left nasal cavity. A section of same showed it to be large cell sarcoma. Right side of the nose was normal.

This is not an uncommon condition, but is of interest in showing the phenomenal disfiguration of the face.

Mrs. M. R., age 60, was referred Aug. 22, 1924, for stoppage of left side of nose and swelling in the face.

About two weeks previously the left side of nose became stopped and remained so, but no pain or distress.

Examination showed a tumor mass occluding left orbit had a tumor presenting over the lower orbital ridge.

Transillumination—Right side clear, left side entirely dark.

This condition steadily increased without discomfort until Nov. 20, when the last photographs were taken.

The tumor then had pushed out onto the left cheek, pushing the eye upward and outward about two inches, extended down into the mouth and over the nose.

The left eye—The tension was low, but she could readily count fingers at four feet.

She was just beginning to have opiates for the distress. There was no breaking down of the tumor, but increasing in size steadily, and extended entirely over the nose, and nearly covered the right eye at death, Dec. 25, 1924.

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Quincy, May 20, 1925.

Aug. 25, 1924. Nov. 23, 1924.

Fig. 1. Sarcoma of left orbit.

DISCUSSION

Dr. Walter Stevenson, Quincy:

My average is these cases is fifty per cent. I have had just two, the one for whom I did a great deal died. The one for whom I did little recovered. With the one who recovered, there has always been a question in my mind, as to whether he had a sarcoma of the orbit. This case was that of a Mexican laborer, about forty years of age. He came to me with a history of falling on a stick, the sharp end of which entered the orbit just above the eye. He pulled the stick out, and except for a slight infection, he appeared recovered. When he came to me several months later, the eye was greatly proptosed. Suspecting an abscess, I incised deeply into it and found I had cut into a hard mass, a section of which was removed, and examined in two laboratories, report from each being round cell sarcoma. The patient was referred for radium treatment and recovered very promptly after five or six treatments. So far as I know this man is well now, and to my personal knowledge was well three years after the radium treatment. Of course, there is a question in this case as to whether this might have been a chronic granuloma. The laboratory reports, however, must be given consideration.

My other case was that of a man, seventy years of age, who came to me with much the same condition, that you see in Dr. Dunkley's second picture. I did a complete exenteration in that case and implanted radium; however, the man died of a metastasis in the liver. I am treating a case now, a woman of thirty who has a very slowly progressive proptosis of her right eye; her vision is normal, she has no pain, X-ray and all other laboratory examinations are negative. The question here is, should we go behind this eye, and investigate the orbit. I hestitate in such cases to do an operation of this kind, for I feel that comething should be done now, in other words, my feeling about these malignancies, is that the earlier we operate the better the result. In view of my experience, I feel that radium or X-ray therapy should be used.

Dr. H. B. Young, Burlington: I had a case last year of a woman 86 years of age, who came to me

with a tumor mass in upper nasal orbit. There was a little hemorrhage in the anterior chamber. Eyeball stone hard proptosed down and out and practically no movement. She was visiting in my part of the country, and the daughter lived in Chicago. So I advised her to go back to her daughter She came back a month later when the picture was entirely changed. She hadn't followed my advice. At that time there was intense chemosis or conjunctival swelling down between the lids. Instead of a doughy mass in the upper nasal corner of the orbit, there was a swelling which had a distinct fluctuation. Then she decided she would follow my advice and go back to Chicago; and she went under Dr. Faith. I eventually understood that he incised the swelling and got a bloody serum as a discharge. She lived about six months. She was 86 years of age at the time, something rather remarkable that she should live so long—in constant distress.

A METHOD OF REPAIR OF SCALP DEFECTS.*

E. P. Coleman, M. D.,
CANTON, ILLINOIS.

A rather extensive review of the literature reveals many cases of scalping or of severe scalp injuries where difficulty was had in making skin grafts grow, but very few where the pericranium was destroyed and no vascular surface present for grafts to grow on. It is my purpose here to report two cases of the latter type.

Scalp defects following injury may vary greatly in extent and also in their tendency to heal. Simple wounds, or those associated with skull fracture will not be considered here, because their healing is ordinarily a simple matter. Instead I wish to take up those injuries of the scalp where so much tissue is lost, or the blood supply is so badly damaged that it is a difficult problem to obtain an epithelial covering.

The commonest example of this rather uncommon injury is avulsion of the scalp. The earlier cases reported in medical literature have been where women factory workers have had their hair caught in moving machinery and the scalp torn partly or wholly off. Automobile accidents have given another series of cases, usually somewhat less severe. Extensive burns have also caused the same difficulties in healing that are found in the types just mentioned.

*Read at annual meeting of Illinois State Medical Society at Quincy, May 18, 1925.

In the early history of this country, many wounds were made by Indians scalping their captives, and many of these scalped individuals survived. Scalping, by the way, has been done by the earlier representatives of almost all races at some time during their development. It is mentioned in the Bible. Herodotus says it was practiced commonly among the Scythians, the ancestors of the modern Cossacks as early as 1500 B. C.

Halsted in reviewing 26,000 cases at Johns Hopkins, failed to find a single case of avulsion of the scalp in that number. Davis in 1910, summarized 132 cases of avulsion, while a little later, Law added to his cases enough to bring the total up to 167. Of these cases the majority were avulsion of the scalp alone, with the pericranium and its blood supply being left intact. A smaller number of this group, not listed accurately, had all tissue destroyed down to the bone itself, and it is the handling of this type of case that I wish particularly to take up.

The scalp proper consists of the skin, subcutaneous tissue and the aponeurosis of the occipito-frontalis. This is separated from the periosteum or pericranium, by a loose layer of subaponeurotic areolar tissue, that permits the free movement of the occipito-frontalis tendon. As the pericranium is quite firmly attached to the skull, it is not usually injured when the scalp is avulsed. Consequently, after an extensive scalp injury has occurred, the parts may be cleansed thoroughly with soap and sterile water, irrigated with Dakin's solution or bichloride of mercury solution and closed with sutures. However, I have been unable to find record of a single case where primary suturing has been successful when the scalp has been unhas been successful when the scalp has been completely avulsed. Flaherty says to graft the raw pericranium with Thiersch grafts as soon as the bleeding is stopped and the area disinfected. Law recommends the use of amniotic membrane for the same purpose. However, heterogeneous grafts have not as a rule been successful. A case recently reported by Holman in the *Journal A. M. A.*, is a good example of this type. In a case of complete avulsion of the scalp, granulations formed over the head,

were freed from infection by frequent irrigations with Dakin's solution, and finally skin grafted with pinch grafts until the entire area ephithelized. This is the method of choice under these conditions, and practically the only one that is successful. If cases of this type are not skin grafted quite extensively, they may be very slow in healing. Gussenbauer had a case lasting twenty months. Abbe of New York had a case treated successfully, which required 12,000 grafts in four years' time. These were pinch grafts, and a few were applied 2-3 times a week.

The second type is where along with the loss of a greater or lesser amount of scalp, the pericranium is destroyed. This has happened in some cases of scalping, a few of avulsion, where along with a large area of scalp, a smaller amount of pericranium was lost, in deep burns, and in my two cases of electric burns. In the healing of these cases, granulations form wherever there is an area of pericranium to support them, but of course cannot grow upon the bare bone, as that cannot furnish a blood supply. By the time that the skin edges have been freed from necrotic tissue and rendered sterile by Dakin's solution, enough retraction of the scalp has taken place, that it is impossible to cover the defect by undermining the scalp and drawing the edges together by suture. Wallace has bridged the gap centrally and left a lateral gap on each side, with healthy pericranium underneath. This will heal from the edges, or can be grafted at a later date, but will only apply to cases where the defect is quite small. If flaps are taken from the side of the wound, it is difficult to make them adhere over the dead bone, and many attempts at the usual type of plastic operation result in failure.

The only supply of blood which is available to remedy this condition is in the diploic veins, in the space between the outer and inner tables of the skull. These veins contain blood that came originally through the osseous branches of the arteries of the dura, and are connected with the circulation of the outside of the skull, by means of the emissary veins. If these veins are properly uncovered, they will furnish the blood supply for healthy granulations over which the neighboring skin will grow, or which will furnish an excellent base for skin grafts.

The diploic veins may be reached in one of two ways. The commonest being to drill numerous small openings through the outer table of the skull. This is sometimes called the Mayo method. Granulations will spring up through these holes, will coalesce and form a base for skin grafts. Another method which has the single advantage over the previous one of saving time, is to remove the whole outer table, where there is no blood supply to be otherwise obtained, and have a vascular area available at once.

The earliest recorded case upon which any such method was used, was reported in an article by Bevings of Philadelphia. In 1777 a Philadelphia doctor by the name of Vance, had a patient who had been scalped by the Indians. His wound had all healed excepting the middle portion which was bare bone, and which showed no signs of improving. Vance took a shoemaker's awl and bored numerous holes through the outer table. That is, he quit boring when a reddish fluid appeared. In his account of the case following operation, he said that "after a time proud flesh appeared to rise in these holes," and he further stated that the wound "skun over slow."

Law, in reviewing Porter & Sheddon's record of Dr. Vance's case, recommended drilling to the diploe and then skin grafting over the granulations when they appeared. Davison in 1915, drilled down to the dura in such a case. He made 50 holes in an area about three inches in diameter. Granulations sprung up through these holes, coalesced and covered the bare area. This eventually healed from the scalp edges without grafting.

The following two cases are reported to demonstrate this method as being probably the easiest and most satisfactory way of obtaining an epithelial covering when the bare skull is exposed.

Case 1. B. H., a man 28 years of age, on January 23, 1924, while working near high tension wires, brought his head in contact with a wire carrying 2,500 volts of electricity. He was rescued unconscious and taken to the Graham Hospital, where I first saw him in consultation with Dr. J. E. Coleman. His injuries consisted of several superficial burns upon the hands, back and right foot, where the current had grounded, and a deep, charring burn upon the left parietal region, about four inches in diameter. The burns were treated with sterile vaseline, and healed readily excepting the

one upon the head. When the charred slough separated the burn was seen to extend down to the bone. After irrigating this wound with Dakin's solution until it became sterile, an attempt was made to cover the defect by operation. On April 12, 1924, under local anesthesia, about two-thirds of the scalp was undermined, split into four sections, and freely mobilized. In spite of extensive mobilization the tissue edges could be held together only by pulling the sutures up very tightly, and in the center, the bare area could not be covered entirely. In the course of ten days the transplanted edges had sloughed and retracted, until the bare surface was as large as ever.

After this experience the patient returned to work, dressed the wound himself and reported only occasionally for observation. After waiting for a period of four months, with no improvement, he again consented to a further operative trial. My intention at this time was to drill a number of holes to the diploe and see if enough blood supply could be obtained to furnish granulations that would support an epithelial surface. On August 28, 1924, the head, which had been previously shaved and prepared, was again cleansed with McDonald's solution and prepared for operation. No anesthetic of any kind was used, as it was intended to drill bare bone which would have no sensation. A bone drill 1/16 inch in diameter was used, and about thirty holes, averaging ¼ inch apart, were drilled through the outer table, stopping when there was a free flow of blood. When the drilling was practically completed a portion of the outer table cracked and came off with the drill, revealing a fresh surface of healthy granulations under the dead bone. With this evidence of the condition I had hoped to obtain later, already completed, I removed all the outer table in sight, and as far under the scalp edge as could be reached. There was no discomfort to the patient while this was being done, and while there was a slight amount of bleeding from the newly found granulations, it was easily controlled by hot packs. The patient had no discomfort of any sort following this operation, and within a week was ready for skin grafting. The raw area was covered with Thiersch grafts, obtained from the patient's back under local anesthesia, and within two weeks more the wound was completely healed. From that time up to the present the patient has had no trouble with his scalp.

Case 2. L. G., a man aged 26, on May 19, 1924, was working on a high tension wire near Cuba, Ill., when his head came in contact with a live wire carrying 33,000 volts. An arc from this entered his head and was grounded through the left foot. At first he was unconscious and thought to be dead, but artificial respiration was performed and he revived, only to develop a wild delirium which lasted for an hour, and was partly controlled by ½ gr. morphin sulphate. I first saw him at the Graham Hospital about three hours after the accident, in consultation with Drs. J. W. Welch and C. N. McCumber. He had superficial burns over the chest, neck and left leg, while the left foot was badly burned on both top and bottom. There was a deep charring burn on the head that involved an area three inches in diameter over the occipital bone, and extended forward over the left parietal bone, five inches long by less than one inch wide. He gradually recovered from the shock and four weeks later was moved to his home with the superficial burns healed, but the left foot and head still unhealed. By this time the charred tissue had separated from the scalp, leaving the bare bone exposed without periosteum, and the granulating edges had made the circular burn about two inches in diameter.

I next saw him on August 7 when the foot was almost well, the long narrow burn over the left parietal bone was healed, but over the occipital bone there was a defect in the scalp, healed down to the bone with epithelium, leaving an area of uncovered skull two inches in diameter. Operation on August 8, 1924. The head was shaved and prepared with McDonald's solution, and with a 1/16 inch drill the outer table of the skull was drilled down to the diploe in 20-30 places. The bone was thicker than in the previous case, and more difficult to drill. With the recent experience of so satisfactory a result in removing the entire outer table, it was decided to do the same here, but the density of the bone made the operation more difficult. Finally, after making the drill openings close together, it was possible to pry off portions of the outer table with a chisel, until the entire area was uncovered. Here again, as in the previous case, a well formed bed of granulations was found. This removal of bone had to be done gently, as the patient had received no anesthetic, but he complained of no pain at all. It was planned to use skin grafts after a week or ten days to cover the raw area with an epithelized surface, but as the patient felt no ill effects from the operation he left the hospital the same day and did not return for two weeks. At this time the raw surface was nearly covered with a new layer of skin that had grown out from the adjacent edges, so it was let alone for another week, at the end of which time it was entirely well. A recent report from this patient is to the effect that the scar causes him no trouble, and that aside from a painful foot, he has no ill effect from his injury.

It is obvious that no conclusions can be drawn from two cases, but when I consider the time wasted in ineffectual operation and treatment of the first patient, I feel justified in calling to your attention the fact that the method employed in these cases is just as effective now as when employed by Dr. Vance in 1777.

REFERENCES

Ochsner's Surgery: iv, 565.
Flaherty: N. Y. State J. Med., xvii, 382, 1917.
Wallace: Brit. Med. J., ii, 256, Aug. 19, 1916.
Davison, T. C.: J. A. M. A. lxx, 1368, May 11, 1918.
Porter & Shedden: Boston Med. & Surg. Journal, clxxxvi, Feb. 19, 1921.
Pirrung: Ohio State Med. Journal, Feb. 22, 1918
Med. Record, N. Y., 1893, xliv.
Hanbold: J. A. M. A., xlviii, 1429.
Keen: V. 1, 892.
Robison: S. S. & O., V. vii, 633.

Davis: Ann. Surg., lii, 721.
Law: S. S. & O., xix, 229.
Nuzum: J. A. M. A., lxiv, 1238.
Holman, Emile: J. A. M. A., lxxxiv, 350, 1925.
Davis, G. A.: J. A. M. A., 1922, lxxviii, 218, 222.

DISCUSSION

Dr. Carl Beck, Chicago: This report of Dr. Coleman is of great interest because it opens a number of questions of plastic surgery which interest me very much. My earliest experience with scalp defects was a case reported by Kussenbauer. He had had several cases of bullet injuries where the scalp was torn off. My own experience has not been so much with traumatic injuries as with pathologic injuries. A woman, whost case I described in 1896 in the *Journal A. M. A.*, had an olive size defect of the scalp due to syphilis. In this case cicatrization took place underneath the abrasion which led to a number of fistulae and afterwards to the large defect. The bone remained bare, and the area was covered with unhealthy granulations. There was a question of covering this defect and at that time I had not had very much experience as to the rules of plastic surgery. I had an idea that I might use an animal graft and my assistant, Dr. Carl Wagner, operated on a dog along side of my table while I operated on the patient. He shaved the side of the dog's chest, cut out the ribs and pleura and cut a flap about the same size as the defect in the head and I put that into the defect in the scalp. For the first few days it looked very well, then all of a sudden something occurred and every one wanted to move away. There was a smell of dead dog. All the patients did not know what had been done. We took the patient up to the operating room. The flap had become dry but there were some adhesions and a collateral circulation had been established. I removed the flap with all the tissues. Something occurred that interested us very much. There was bone-forming tissue and ossification took place.

Another case I saw in the practice of my namesake, Carl Beck of New York, who was a very good plastic surgeon. He had not tried skin grafting but he had tried transplanting of a free flap in quite a large defect. He had taken off the superficial skin of the scrotum to use in covering a defect on the scalp. As it healed it looked like a little scrotum on the man's scalp.

Dr. Frederick Christopher, Winnetka: Would it not be advisable in the future if one had a case of fresh avulsion to adopt this procedure at once in the hope of getting granulations? Would that not be good routine treatment in such cases?

Dr. E. P. Coleman, Canton (closing the discussion): In reply to the last question, I think that would be a very good idea. When I had my first case I did not know how to handle it. I had to look it up in the literature. In the second case or in both of them as a matter of fact, it would not have been right to do anything at the time the patients were brought in because they were in shock from electric burns. Afterwards there was this sloughing off of the area and the flap had to be put in. If you could go in early I think it would be ideal. In both of these cases there was only a layer of thin inner table left.

I want to thank Dr. Beck for his discussion.

BILATERAL HEMATOSALPINX WITH RUPTURE OF ONE TUBE

H. Hoyt Cox, M. D.
Albert H. Baugher, M. D.
Chicago

Simultaneous hemorrhage into both fallopian tubes is a rather unusual condition. It occurs most frequently in extra-uterine or tubal pregnancy and may be due to a double impregnation, or pregnancy in one tube with congestion of the other. It may also occur in cases of atresia of the vagina and uterus where menstrual blood accumulates in the tubes. Hemorrhage into the tubes may take place during the course of a chronic catarrhal salpingitis, hydrosalpinx or pyosalpinx, torsion of the tube or erosion of small vessels being the active cause. Mild bleeding into the tubes may rarely occur also during normal menstruation.

Bilateral hematosalpinx, complicated by apoplexy of one tube is extremely rare. It is in most cases due to tubal pregnancy in its early stage, although Bland Sutton and Veil[1] have traced ruptured hematosalpinx in several cases to partial torsion of a tube already dilated with blood from other causes.

G. Granville Bantock[2] cites a case of ruptured hematosalpinx which at post mortem showed the outer part of the fimbriated extremity of the right fallopian tube distended to the size of a tennis ball. A clot had formed plugging the opening. Nothing could be found to indicate a recent existence of a decidual membrane. He makes no attempt to explain the etiological factor.

Alban Doran[3] reported a case of tubal abortion with hemorrhage into the other tube. In his case, however, the existence of a tubal pregnancy was demonstrated beyond question. In the following case no evidence of a tubal pregnancy could be found in either tube although numerous sections were made at close intervals. Our patient, a young white female, aged twenty-eight years and married, was admitted to the Illinois Central Hospital March 13, 1924, at 10 A. M. in a state of collapse. At 8 P. M. the preceding night she was seized with a severe lancinating pain in the right lower abdomen which doubled her up. She became nauseated and vomited several times. The pain became progressively

1. Sutton and Veil; Centralblatt F. Gynals, 1891-44.
2. Bantock, G. G.: Brit. Gyn. Jour. 5, 1894-5; 490-503.
3. Doran, Alban: Brit. Med. Jour. 1891, v. ii, 787-793.

worse and in a few hours she complained of intense weakness and thirst. Her last menstrual period was February 1, 1924, but on March 1 she had a slight flow for one day. At the outset of pain, March 12, 1924, she noticed a slight bloody discharge which had continued up to the time of examination. She had a spontaneous miscarriage eight years ago, shortly after her marriage. She did not become pregnant again although no precautionary measures were used. For the past six months she had observed a dull aching pain in both lower iliac regions at times and a moderate leucorrheal discharge had been noticed . Her last normal menstrual period was extremely painful, necessitating her confinement to bed for one day. Ordinarily she had only slight pain, with no incapacitation. Upon examination we noted that she was extremely pale, and had a rapid, weak pulse. She was markedly tender over the entire lower abdomen but more so in the lower right iliac region. Vaginal examination disclosed a boggy mass filling up the right cul-de-sac, which was extremely tender. The blood count showed 3,640,000 reds with 68% hemoglobin. The urine contained a trace of albumin and a few hyaline casts.

Fig. 1. Gross specimens. Arrow denotes site of rupture.

A diagnosis of ruptured right tubal pregnancy was made and immediate operation performed. The abdomen contained a large amount of blood, fresh and clotted, with active hemorrhage from the right tube, which was distended with blood and ruptured at the fimbriated extremity. The left tube was markedly distended with blood but not ruptured. The ovaries were normal. Both tubes were removed and the patient made an uneventful recovery.

The pathological examination showed the right tube to be filled with blood and moderately dilated. There was a large rupture through the fimbriated extremity. The fimbria were not normal, being somewhat matted together so as to partially close the tube at this point. The left tube was completely closed at its fimbriated extremity and somewhat larger than the right and more markedly distended with blood. The isthmus of each tube appeared normal. The walls were thin with the exception of a few comparatively small areas where slight thickening existed. There was no evidence of pregnancy although a large number of sections were examined. As shown by the photomicrographs, the thickening was due to the projection of villi into the lumen and an inflammatory reaction was noted at these points. Sections from the walls of the tubes showed a marked reduction in the number of villi without the usual fibrous changes of a subacute or chronic inflammatory condition.

Fig. 2. Showing villi projecting into lumen.

The areas which did show inflammatory thickening showed numerous plasma cells and some round cells. No polymorphonuclear or eosinophilic leucocytes could be found at any point. The sections however showed evidence of catarrhal salpingitis in that there was a fusing together of the villi of the tube, with numerous round cells

present in the walls at the points of greatest thickening. In the normal tube the lumen should be nearly filled by folds of mucous membrane lying free.

Fig. 3. Showing inflammatory reaction.

In catarrhal salpingitis there is little doubt but that both tubes are usually infected, but frequently one may heal completely while the other goes on to a more destructive condition.

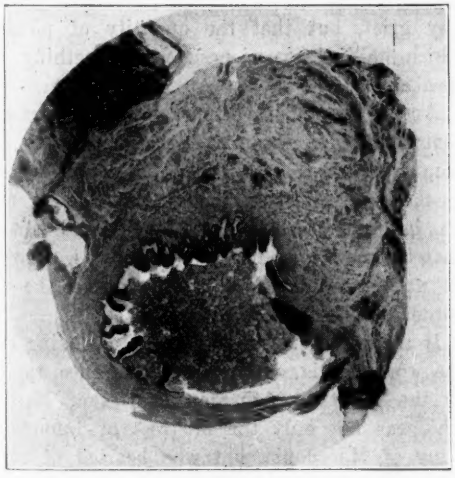

Fig. 4. Unruptured tube showing hemorrhage in lumen.

Although clinically our case resembled a ruptured extrauterine pregnancy, absence of histological evidence, and the definite inflammatory changes in the tubes lead us to believe that the underlying etiological factor was a primary catarrhal salpingitis with subsequent erosion of tubal vessels. Torsion of the tube filled with blood probably predisposed rupture.

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INSANITY AND THE SHORTNESS OF HUMAN LIFE ATTRIBUTED TO ANCIENT AND MODERN SENSUALITY*

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CHICAGO.

In this paper I shall undertake to point out the relation between phallicism or phallism, sexual perversion, and insanity, and to what degree they are similar to and dependent upon one another. Unsoundness of mind and insanity I shall treat as natural consequences or inevitable sequences of the old phallic worship. Not that I mean all forms of insanity can be traced to phallicism, of course, but that the greatest share of mental disorders have their origin in that strange and enticing form of worship practiced by our pagan and barbaric ancestors, and its modern and present-day offspring—over-indulgence in coitus and quasi worship of the sexual organs. Christianity will be included in my remarks only to the extent of making clear what I believe to be true, namely: that it was and is the dominant factor emancipating man from vice and sensuality and bestiality born of sex-worship. Again, it is not possible to analyze phallicism in its minutiae and comprehensively, or to point out that the light of reason and conscience finally taught men that phallicism destroyed the very foundations of life itself, if Christianity be omitted, although the tenets of each are diametrically opposed to one another.

I have no new dogma to expound, nor is it my purpose to make these remarks savor of a homily or an argumentative discourse. I shall merely undertake to show that much insanity came to us through the carnality of ancient and modern men. And I shall also attempt to prove that men's lives were shortened as a result of such practices.

That Christianity has for 1900 years rested securely on the beatific citadel of Christ's teach-

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ings, and that it has stood firmly as an impregnable bulwark against the licentiousness and base sensuality arising like a noxious miasma from phallicism and its kindred vices should not, I think, be denied by logical thinkers, or even by the casual student of history. I shall endeavor, however, to show that this is true, and that the advent of Christ has no parallel as an extraordinary and enduring force combating sin, as typified in the licentiousness emanating from phallicism, since the first man and woman came forth in radiant purity and immaculate as images of their Creator, to live and love away a dreamy existence under the quiet and summery groves of that terrestrial paradise described in Genesis. The serpent of temptation caused the downfall of our first parents from their state of child-like innocence, and thereafter they indulged in carnal practices hitherto unknown to them, until that time long after, when their children had multiplied into numberless myriads, Christianity came into the world to combat another serpent exemplified in the pleasurable though debasing form of phallicism or sex-worship.

In order to construct a substantial fabric for the subject of phallic worship, and for the premise that it is a forerunner of insanity, and that I may form a basis for the assertion that the manumission of its devotees or votaries from such worship comes through the influences of Christianity, I shall first briefly define insanity, unsoundness of mind, and phallicism. Afterward, I shall enter into a review of the peoples living during the period when phallic worship was at its zenith, and tell about their achievements as well as their vices. Such essential facts will the better enable you to weigh and consider all that follows. I shall explain with some detail what advancement phallic worshipers had made in the liberal arts, in the sciences, and in letters; something about their customs and laws, their environment and their manners of living, their bravery and their fortitude in times of stress, their superstitions and weakness, and their attitude toward life, with their conception of death and immortality. This review will aid us in drawing a comparison between the ancient and modern pagans with their phallicism, and people of today, many of whom openly declare a profession of Christian faith, but who are in reality sex-worshipers.

Insanity means not sound. It is a disorder or dissolution or a breaking up of the mental faculties, more or less permanent in character, but without loss of consciousness and will. It is marked by changes in character and habits, by illusions, delusions, and hallucinations, and by unreasonable and purposeless actions and language. We speak of it as madness, lunacy, and mania. An insane person does not react normally as a member of that society to which by birth and education he belongs. He deviates from the ordinary line of conduct, and in fact the legal test of insanity is based mainly on conduct, although serious harm often arises when this legal view is adhered to too closely and regarded as an infallible criterion. The relation of insanity and crime and vice is therefore closely interwoven, and it is often difficult to classify them and differentiate between the normal and abnormal reaction of an individual to his circumstances and his environment, because of one's inability to determine with certainty the line of demarcation between the sane and the insane.

The luxury of madness was once argued by Heraclides in the fourth century before Christ, when he declared that Thrasylaus was once afflicted with violent madness but he recovered, and after his recovery he informed his friends that he had never been happier in his life than during his attack of madness; for he never felt any grief, but that the quantity of pleasure which he had experienced was something unspeakable.

And in Xenophon's Memorabilia, Socrates says that madness or insanity is the contrary to wisdom or prudence. He did not regard ignorance as madness, but he thought that when a man was ignorant of himself and fancied and believed that he knew what he did not know, i. e., when he was ignorant of his own ignorance, he was bordering closely on madness.

It is also interesting to know in passing that the word mania, or madness, was once applied to the beautiful Athenian courtesan, Melitta, who was not only the mistress of Demetrius, King of Macedonia, but who boasted of many lovers who, passionately enamoured of her, referred to her during conversation as their mania or madness, until the name "Mania" prevailed and she was so addressed thereafter.

Unsoundness of mind does not necessarily mean insanity, for there are many with unsound minds whose relationship to their circumstances

and their environment is not seriously affected. Unsoundness of mind may arise from some dysfunction of the nervous system which has little, if any, effect on the social life of an individual, but which may interfere to some extent, as I have said, with the normal reaction of a person to his circumstances.

By phallicism we mean the worship of the generative principle in nature as symbolized by the phallus, or the male organ of copulation; and when sex-worship is considered comprehensively, it includes the yoni, a Hindoo name for the female organ.

In a general way sexual perversion may be defined as the possession of impulses which lead to sexual gratification in an abnormal manner, with a partial or a complete apathy toward the normal method. A sexual pervert is a person with abnormal sexual instincts which he indulges whenever an opportunity arises for such indulgence. He turns aside from the natural plan and method of coitus. "Mens sana in corpore sano" cannot be said of a sexual pervert, although it must be admitted that many have had the capacity to achieve much that is commendable.

When our Creator endowed man with reason, together with the gifts of conception, intuition, and judgment, thus elevating the human mind in the greatest possible measure above that of beasts, it enabled him to distinguish truth from falsehood and right from wrong. This faculty of determining whether our actions are just or unjust, good or bad, we call conscience, and whether it is sufficiently active to occasion remorse or compunction of heart, or whether it is in a state of quiescence and apparently absent from the human mind, all men possess it, because it is a divine attribute bestowed upon reasoning creatures. God gave to beasts instinct alone, that natural and unreasoning prompting or suggestion to act without a distinct apprehension of the end to be achieved or the object to be accomplished. Without the faculty of reason the beast could have no conception of good or evil; of improvement or change in the method of union or satisfaction; its actions were guided solely by natural impulses. But man, possessing reason, which places him upon the highest plane above the status of the brute, thereby aiding him in perceiving and knowing about human and divine affairs—about good and evil—man, I say, has for ages cudgeled this reasoning brain and exhausted his ingenuity in his efforts to discover new and different methods of sexual gratification and pleasures, or a means to awake and stimulate and spur ahead a waning and fast declining passion.

What do we find in the final analysis of man's attempts to change natural into unnatural practices—what is the outcome of strictly following or basely abusing the Creator's wonderful plan of procreation when the sexual practices of both men and beasts are scrutinized and considered, and when the scale of time and life is set to measure and weigh their actions—their achievements and their failures? In order to understand what men have accomplished or what they have destroyed by foul habits begotten in the darkened recesses of the human mind, we have to study man to find the answer. The problem is not a difficult one. Lifting the veil of our own hearts and peering within, what do we see hidden there? Do we not find that the creature, man, has for ages violated and debased his own body and mind—that he has made use of this God-given faculty of reason to abuse himself by searching for unnatural means of sexual gratification and other sensual pleasures? Can we not see that he has sought to discover newer means to whip and spur along a passion which, in many instances, is already jaded and near exhaustion? —to find novel but baser methods to improve upon the natural way implanted by his Creator at birth? And what is the summa summarum—the sum total of man's dissatisfaction and aversion to nature's plan, and his zealous searching for sexual stimuli and something new? What is the nature of this vast array of human flotsam and jetsam bobbing and swirling along in the wake of man's passage across the sea of life? The result is, as I view it, that this man and his father and his grandfather, and on back through antiquity, his kind—the male human being, in particular, has continued to drain away to excess that vital principal, that secretion which is the embodiment of perfect manhood and without which a man is not a man, until his confidence and his self-respect become attenuated or are lost, and in their place we find irritability of temper, secretiveness, groundless suspicions, moroseness, or gloomy apprehensions of impending trouble or disease or disaster. Finally his strength of body and mind becomes impaired,

his self-control becomes a spectre of past years; he falls and accepts unnatural pleasures; and then, perhaps, after a period of dejection and remorse he rallies, determined to abandon it all, only to fall again and again. This battle with carnal desires continues until, in the mire and despondency of a troubled conscience he realizes, too late, that he has effaced the real purposes of life—of libido, and worshiped in the lustful temples of Venus and Bacchus too long; that he has undermined and weakened his body and his nervous system, and that he has sinned with himself and against nature—against an inexorable God. It is but a succession of steps or degrees in this process of disintegration or dissolution until he becomes temperamental, or peculiar, or eccentric; his weakened body and mind loses its resisting powers against temptation; various types of neuroses supervene and continue on through many gradations until unsoundness of mind or insanity may appear.

But what about the animals of the air and the fields and the deep—the dumb creatures imbued only with instinct, who are still propagating in the same manner and as often as they did when men like Jacob lived 445 years, and Noah lived 950 years, and Mathusala lived 969 years? Where is anything mentioned or authenticated which might give credence to an assertion or even warrant a supposition, that there has been any material change in the bodies and the brains of our domestic animals within the last five or six thousand years? This statement is made with due consideration for the period of time a year may have covered when men and animals first came into being. Are not cattle and sheep the same today as they were ages ago when primeval men of the stone age used them as the first money and as the first animals sacrificed to their rude gods? Who can deny and prove that their span of life is not the same today as it was when the first of these creatures began their struggle for existence? If the general contour of man's body and of the organs and members and tissues of his body have not changed, and there is no proof whatsoever that such changes have occurred which a reasoning and receptive mind could accept—if a man's body has not changed, I say, then it is not reasonable to believe that a change has occurred in the contour of the body of a horse or a cow. And if no great change has taken place in the shape of a man's body or a horse's body, what has caused the great difference in the age of men, while horses and cattle live as long now as they did when Mathusala lived, although both have been subjected to the inroads of disease and the ravages of time? Over-indulgence in copulation and the acceptance and practice of perversion is, I believe, the underlying cause responsible for the shortening of human life and much of our present day insanity.

In bringing before you the subjects of sexual perversion and phallicism together with vice, I realize that they are dangerous topics when they are discussed outside of a medical meeting and before the illiterate, or in the presence of the impressionable and plastic minds of adolescence. Indeed, it is well, I think, that the most of the books on phallicism which have been published are kept securely under lock and key in the libraries where they are found. You gentlemen know that much of the writings on these subjects are purposely salacious for monetary gain and in order to please the prurient minded. And such books undoubtedly have a confounding effect on the immature and inexperienced and receptive mind very like the alluring and seductive booklets of the charlatan which influence and befuddle the bewildered man seeking a cure for his venereal disease; or the same as they confuse the neurasthenic who daily follows a will-o'-the-wisp in search of a remedy for his ofttimes imaginary ailments.

I think it was Tardieu who said that if a physician is obliged to see all things, let him be permitted to say all things. Especially is this statement applicable in a paper of this kind and before a body of medical men. I think, moreover, as many physicians do, that it falls within the sphere of the physician and of him alone to discuss such subjects as sexual perversion and phallicism publicly.

Although it is often a severe test of one's magnanimity to sympathize with or even brook one of perverted sexual practices—one who may be ostracized and classed with outcasts, yet some one must offer aid and a friendly harbor to this human derelict. That task usually falls upon the physician, who is taught and knows that a pervert is often an unhappy victim of mental and moral misery of the most pronounced type, and that he is not altogether to blame for his condition regardless of the manner in which we may think he acquired it. He is neither normal

nor natural. Granted, he may be without pain or fever, and free of neoplasms, but he is a sick man anyway.

Heredity may have much to do with his condition, and another mitigating circumstance which should be borne in mind is that it is not because of his own choosing he came into the world. Perhaps his father and mother kept the seeds of perverted tastes well watered and cultivated during their lives, and then passed the rank smelling, but luxuriant plant on as an unwelcome heritage or sensual propensity, to their offspring. How often do we, as physicians, see the child bearing an added load of human misery which is directly traceable to the ignorance and the folly, and the complete apathy toward the practice of self-control exhibited by that child's parents.

Sometimes when I regard a newly born child, and when I consider the temptations of the flesh and the sorrows and the deluding joys which will be a part of his life later on, together with the dross of sins and weaknesses inherited from his parents or alloted to him through atavistic channels, I think that the writer in Athenaeus was somewhat justified when, in the second century before Christ, he wrote:

"And so, as many wiser men have said,
Not to be born at all is best for man;
The next best thing to die as soon as possible."

And I wonder, too, if the inhabitants of ancient Thrace were actuated by the school of experience, and were they acting in harmony with what life promised them, and eventually bestowed upon all of them, just as life parcels out a leaven of sorrow to all men living today, when we read that the Thracians held wailing parties for the newly born child, deploring the many evils he must contend with throughout life, and the various sufferings incident to mankind. But when a person died they made merry and rejoiced, offering sacrifices to the gods who had conferred the boon of death upon the favored person, while they recounted the many evils from which he had been released.

When the world-long abuse of man's sexual powers is considered attentatively, I think that there is no credit too great for the old man who, peering into the mists which sweep along that shore where the faithful pilot ever sits and beckons, sighs for the last time and then wearily totters on and takes his place in the waiting boat, while the old ferryman carefully scrutinizes the aged man's passport upon which is deeply graven, "Blessed are the clean of heart for they shall see God." And as he heads out into the stream for the shadowed shore and worldly things disappear from his sight forever, the old man realizes with a deep sense of joy and satisfaction that he labored unceasingly against the temptations of the flesh and the world, until he finally conquered and became the master and the ruler of his passions. He leaves no encomiums emblazoned in shining epitaphs, no monument remains a prey of the crumbling elements of time, or as an ivied object of interest to the curious in future days. No marble bust of him adorns a niche in the Hall of Fame. He dies and he is quickly forgotten. And yet this old man has, perhaps, fought a disheartening but a winning battle against his passions which is more worthy of laudation than were the victories of a Darius, an Alexander, or a Caesar. The name of the old man who became the ruler of himself—a king in his own domain—is forever erased from the minds of men and swallowed up in the sea of oblivion. The good is interred with his bones, while the names of the Caesars live. But still, as Horace says in his Epistles, "he has not lived ill who at his birth and death has passed unnoticed."

Candor in our dealings with moral derelicts or the sexually abandoned, and a benevolent attitude toward them in so far as one is able should be our purpose and our duty, however unpleasant the task. Especially should a jurist be considerate and lenient when such persons occupy his attention and appear in courts of law. Few stones would be cast if only those without sin or moral blemish and undefiled threw the stones. Leniency in such cases where the morally unclean are involved does not mean sanction or condonation. A truism in Cicero's Moral Treatises is quite applicable here, and it is patent that that immortal recognized the inherent weaknesses of human beings just as have all wise men since the beginning of time. He says, "All that is excellent is rare: nor is aught more difficult than to find anything which in every respect is perfect of its kind." Pliny, too, declares that of all other virtues the most becoming is a lenity of disposition toward the slave of vice, and he epitomizes it all by informing us that Thrasea used to say, "He who hates vice hates mankind."

Horace adds this, "For no one is born without vices; he is the best man who is encumbered with the least. He who requires that his friend should not take offense at his own protuberances, will excuse his friend's little warts. It is fair that he who entreats a pardon for his own faults, should grant one in his turn."

We are told that at one time in the world's progress there was a golden age, an age when pure simplicity and innocence existed. But it is hard to reconcile one's mind to this thought when we know that the first man born into the world killed the second. A golden age is a myth, the nectar and ambrosia of dreamers. A golden age never existed and will never be enjoyed in this life.

And in order that you may be further reminded that men gave expression to other noble sentiments concerning the problems of human life during the flourishing eras of phallicism, let me quote again from Cicero, who says: "Troubles and misery oppress thee who thinkest thyself happy and prosperous. Thy lusts torment thee, day and night; thou art on the rack; look where thou wilt, thy crimes, like so many furies, meet thy view and suffer thee not to breathe. Therefore as no man can be happy if he is wicked, foolish, or indolent, so no man can be wretched if he is virtuous, brave, and wise. . . . Crimes are not to be measured by the issue of events, but from the bad intentions of men." Saint Jerome comments on this same thought, saying, "Our vices oblige us to play many characters, for every vice wears a different mask. Thus in a theatre, the same person plays a robust Hercules, a dissolute Venus, and a furious Cyclops." And the deductions of Xenophon about vice is shown in his Memorabilia, where he gives the words of Hesiod, as follows: "Vice it is possible to find in abundance and with ease; for the way to it is smooth, and lies very near. But before the temples of virtue the immortal gods have placed labor, and the way to it is long and steep, and at the commencement rough; but when the traveler has arrived at the summit, it then becomes easy, however difficult it was at first."

In reviewing the peoples of the world during the early ages when phallicism flourished, I beg your indulgence while I recall to your mind salient points of interest concerning them. For, everything that transpired during that time—all of their activities and achievements and their failures, and especially everything they did which can be termed good or evil—has, I believe, either directly or indirectly, influenced or left its impression to a greater or lesser extent upon the minds of all who came into the world after them. Much could be written if time permitted that is interesting and beautiful—some wonderful and some terrible—but it is all fascinating. And the delver in the old of the past is rewarded with many surprises and pleasurable findings as the strata of the ages are removed one by one, until he comes nearer and nearer the conclusion that much in human nature is the same the world over, that it has always been the same, and that there is very little which can be properly termed new. Just as the seed of vice lived long ago and bided its time until it fell upon a soil fertilized with the dregs of iniquity, in like manner almost all that is material and spiritual today may be visualized in embryo in the dim past and practices of former ages.

Let me now direct your attention to some of the peoples who lived during phallic times in order to show that although they were sex-worshipers, some of their achievements excite wonder and deserve commendation, especially when we consider that they knew comparatively little about metals, and practically nothing about the use of steam, electricity, and many other things in present day use.

About 500 years before Christ appeared among the shepherds in Bethlehem of Judea, Herodotus, of Halicarnassus, the Father of History, spent a great part of his lifetime traveling through Egypt, western Asia, and southeastern Europe, which then comprised the so-called civilized world, and distinguished the inhabitants of those regions from tribes they were pleased to call the barbarians. The knowledge he gleaned during his extensive travels through close observation and from a study of the sex-worshiping peoples of those remote days we read in his fascinating history, than which it is difficult to find an account of the ancients more interesting. Without any apparent effort and without ostentation and pretentious parade, he impresses us with the high state of civilization the Greeks and the Egyptians and the Persians had reached in many branches of knowledge, and he tells us about their scientific investigations and their beliefs and opinions concerning astrology, geology, mathematics, and meteorology, of diseases and

medicine, and the achievements of the races in military operations.

We learn that the Egyptian men and women reversed the order of present day practices by eating outside of their houses but entering them to ease themselves; women attended to natural functions of the body standing up while men crouched down; dough was kneaded with the feet and dung was gathered up with the hands. With few exceptions almost all the races inhabiting the earth at that time believed that if the gods permitted dogs and cats and birds to propagate within the sacred confines of their temples, it was no sacrilege for them to do likewise, so they acted in unison with the dogs and cats and birds. The men and women of many nations had promiscuous intercourse and did not cohabit, but associated like beasts, which necessitated a meeting of the men of each tribe about twice yearly to choose fathers for the grown up youths, for it was immaterial who begot the female children. This prosaic ceremony was accomplished by choosing that man as a father who most resembled a young man, which matter of fact event was no doubt in Shakespeare's mind when Launcelot says, "Nay, indeed, if you had your eyes, you might fail of the knowing me; it is a wise father that knows his own child."

Continuing, the Father of History describes the task in which 100,000 men were engaged when the pyramid of Cheops was built, the account of which you are all, no doubt, familiar with. He informs us regarding the manner in which the huge stones in the pyramid were moved and lifted from one tier of steps to the next as the pyramid rose higher, but we know nothing about the manner in which the great blocks were transported over the long distance from the Arabian Mountains except that levers and rollers were employed. For very little was known about iron at that time. Had he told us about the immense ropes and capstans and ships used at that period, and in all probability employed long ages before the building of the pyramids began, we would have less difficulty in understanding how such immense blocks of stone were drawn long distances over land and transported over a wide body of water like the Nile. For you know that when Xerxes, the son of Darius, built his bridge of ropes and boats across the Hellespont, or the Dardanelles, about 500 years before Christ, and over which we are informed five million men passed without halting for seven days and seven nights, he employed cables of white flax and papyrus which were so large and powerful that a cubit or 18 inches weighed 57 pounds. The average width of the Dardanelles is 3 to 4 miles, but at one point the width is a mile, and no doubt this marks the position of Xerxes' bridge.

And that the great ships of Ptolemy Philopater were sufficiently large to sustain tremendous weights such as we find in the stones of the pyramids may be assumed when we are reminded by Athenaeus that "some of these vessels were 420 feet long, and that when one put to sea it held more than 4,000 oarsmen, 400 supernumeraries, 3,000 marines, and besides another large body of men under the decks." The ships of Hiero, King of Syracuse, who reigned about 500 years before Christ, were equally as large and wonderful and equally as fit to sustain great weights. One which was afterward sent as a present to Ptolemy, the King of Egypt, was very like a floating city, containing as it did banquet halls, apartments for the soldiers and others, a gymnasium and walks covered with awnings, gardens of wonderful beauty adorned with all sorts of plants and shaded with roofs of lead and tiles, and with mosiac floors upon which was depicted in figures the whole story of the Iliad. Besides, the ship contained a temple devoted to Venus and the devotees of the phallus, with floors of agate and other beautiful stones tesselated therein, and the walls were embellished with pictures and statues and with goblets and vases of every form and shape imaginable. There was a drawing room, and bath rooms with hot water, and stalls for horses, rooms for arms and furniture and wood, and kitchens for ovens and baking places. This ship was provided with cisterns and wells made of timbers surrounded by heavy canvas soaked in pitch, and some of the cisterns contained large numbers of fish. Great catapults on this ship threw 18-foot arrows to the distance of a furlong, or 660 feet. The ship was covered with lead plates, reminding one of armor plate on men-of-war today, and such great care was observed in building the ship that the heads of nails were sunk and covered with cloth and pitch to prevent erosion from sea water.

During the time when the world was withering under the insidious and malignant influence

of phallicism we are told that on one occasion water was conveyed through pipes made of dried ox hide and other dried skins to reservoirs in a desert a distance of twelve days' journey in order to supply an army posted there later on. We learn that water was sterilized for drinking purposes; that there were specialists among physicians; that the term of an Ethiopian's life was placed at 120 years, while 70 to 80 years marked the age limit of other races; and that the Scythians killed and ate the aged, and aged persons considered it a glorious death to die that way rather than from disease. The Persians, we learn, had thin skulls because they wore tiaras or hats, but the Egyptians had thick skulls and were seldom bald because they left their heads uncovered; that Pheron, the son of Sesostris, sought a cure for his blindness by washing his eyes in the urine of a woman who had had union with her husband and no other man, and that he made many attempts before his eyesight was restored; and that the Ethiopians embalmed their dead and then placed them in hollow columns of crystal so that the bodies were visible at all times.

Continuing on with this account of so-called barbarians and phallic worshipers we are informed that the Scythians used the scalps of their enemies for napkins; and that women in one tribe of the Libyans placed bands of leather around their ankles every time they satisfied a lover. And, finally, we read how Xerxes wept when he reviewed his army and navy of five million men, lamenting that not one would survive to the 100th year; and again we are reminded of the unparalleled bravery of Leonidas the dauntless Greek, who with only about 4,000 other Spartans met and finally defeated Xerxes' army of five million men, mainly because the Greeks spurned death and knew how to fight as a unit and did fight, and even fastened themselves to trees or heavy objects so that they might die fighting with no opportunity to retreat.

Although the world was steeped in phallicism, and there appears to be no distinction between the practices of the great and those occupying the lowest castes or stations in life when sex-worship is considered, it can be readily understood by a study of ancient writings that the faculty of reason and the natural instincts in man led many at that time, and down the ages, to think and dream of a higher sphere and an after world where virtue was rewarded; a place created by some great Power to reward reasoning beings when this life was terminated.

The Egyptians we are assured were the first to declare that the soul of man is immortal, and although they adhered to the belief that when the body died the soul entered another creature, yet one can perceive that they, like all men, perhaps, since the beginning of time, yearned for a state of blissful after-life—a place where the just and the good are rewarded for their attempts to do unto others as you would have them do unto you. Herodotus, himself a pagan, in relating the story about beautiful Helen of Troy, who precipitated the Trojan war, shows that he believes this life was but a preparation for eternal life, and that the recompense of sin was death to the body and to the soul. He says, in discussing the rape of Helen and the punishment of her ravishers, "I declare my opinion, the divine power caused them utterly to perish, and so made it evident to men that for great wrongs great, also, are the chastisements which come from the gods." Cicero, about a century before Christ, a pagan and a phallic devotee, also evinced the natural desire of immortality in his essay on Friendship, where he says, "Nor do I agree with those who have lately begun to assert this opinion, that the soul also dies simultaneously with the body, and that all things are annihilated by death. The souls of men," he says, "are divine, and when they have departed from the body, a return to heaven is opened to them, and the speediest to the most virtuous and just. Which same opinion was held by Scipio; for he, indeed, a very few days before his death, as if he had a presentment of it, descanted on the immortality of souls."

Quintilian voiced a sublime sentiment, too, about immortality during phallic times when he declared, "If the universe is conducted by a superintending Providence, it follows that good men should govern the nations of the earth, and if the soul of man is of celestial origin, it is evident that we should tread in the paths of virtue, all aspiring to our native source, not slaves to passion, and the pleasures of the world."

Tacitus, another pagan, who was born about twenty years after the crucifixion, and who held the highest rank among the historians of Greece and Rome, although he first spoke of Christianity as a "dangerous superstition" and classed it

with "everything infamous and abominable," discloses by his later writings that he agreed with the precepts of philosophers of his day who wrote "Deum cole, atque crede, sed noli quaerere." And in his beautiful and pathetic aposthrophe to the great Agricola, his father-in-law, he bespeaks the longing for immortality when he says, "If in another world there is a pious mansion for the blessed, if, as the wisest men have thought, the soul is not extinguished with the body; may you enjoy a state of eternal felicity."

The Socratic and Platonic professors declared for the immortality of the soul, too, and some of their proofs are short of nothing but revelation, although almost all of them clung to the devitalizing practices of phallicism. But Cicero compresses the whole force of argument embracing the doctrine of immortality when he wirtes, "That which feels, which thinks, which deliberates and wills (meaning as you know a human being) is of heavenly origin, and for that reason must be immortal."

And so we may continue with this strange account of the vicissitudes of the wisest as well as the most illiterate peoples who in some measure indulged in sex worship during past ages. Virgil sang his lays to the muses in a manner unsurpassed for elegance of diction, while his barbaric contemporaries tore the limbs from beautiful females during struggles to carry them off as prizes when engaged in drunken orgies and while sacking the cities of their enemies. The story is related of a king who reigned at that time and who was such a pronounced voluptuary that he never put his hand lower than his navel, which caused some one to remark that his hands are clean, but sure his mind is not. And another king of the same type lived then who, like many living today, thought all human affairs not worth the snap of the fingers, and who ordered a hand with the fingers in the position of snapping sculptured on his monument, and placed above this epitaph, "I was the king, and while I lived on earth and saw the bright rays of the genial sun, I ate and drank and loved; and knew full well the time that men do live on earth was brief, and liable to many changes, reverses, and calamities. Eat, drink, and love; the rest's not worth the snap of my fingers." Another striking example showing that phallicism encouraged one to give heed to present enjoyment only, and demonstrating that its teachings led the devotees of sex-worship into voluptuous paths where virtue was often erased from the human mind.

Comes now Alcibiades, the Athenian, and Axiochus during phallic times, both of whom married one woman and afterward cohabited with the daughter born of that union when she grew to womanhood, both contending that neither one could determine who was the girl's father. Cleopatra married her brother Ptolemy, and King Darius and King Cambyses married their sisters. Nero had illicit relations with his own mother, finally put her and his brother to death, kicked Poppea, his wife, to death, and filled his cup of perversion and degeneracy to overflowing when he personated a woman and was given in marriage to two different men: first to the dissolute roué Pythagoras at the feast of Tigellinus, and a second time to Sporus, an eunuch, consummating the nuptial contract in both instances publicly.

Continuing on with this hotchpotch of phallic peoples we find that the Sybarities, 720 years before Christ, had laws forbidding braziers, smiths, carpenters and others who practiced noisy arts from dwelling in their city, and it was unlawful to rear a crowing rooster in that city, that their slumbers should always be undisturbed. Another law, passed at that time, forbad a woman appearing before judges when she was under prosecution. This was occasioned by Phryne, a beautiful courtesan, who posed as a model for painters and sculptors, and who had swayed the minds of her judges once when she was about to be condemned to death, by tearing open her tunic and displaying her body to the sitting judges. And women still carry on, and men acting as jurors are influenced in much the same manner today.

Penalties for crimes consisted in branding the belly of a gluttonous slave, the feet of a fugitive, and the hands of a thief. Boiled cabbage was used as a sobering remedy; men drank wine not because they were thirsty at that moment, but for fear they might be presently, and wine was so strong that on one occasion three young men in a house became so drunk that they threw all the furniture and chairs and sofas out of the windows in order to lighten the ship they believed they were sailing on. Men considered onions an aphrodisiac, and believed that lettuce,

which they termed food for dead men, subdued the passions; life was so cheap that hanging parties were engaged in as a pastime; Diogenes would have it understood that he did not have pediculus corporis, but that he scratched his stomach in order to rub the poverty out of it; lazy men lived who wished to grow fat in their heart and stomach, lie flat on their back, never say a word and waste away and die with pleasures; while another said if it pleased the gods he invoked them to permit him to eat and burst and die in that manner. Some led such a life of dissipation that they seldom saw the sun rise or set; men-flappers infested society at that time and painted their faces and penciled their eyebrows and bathed in perfumes; and, lastly, it appears that all men during phallic times agreed that any respectable and virtuous man would occasionally get drunk.

Finally we learn that wise but egotistical men lived then as they do today. Alexander would have us believe that flies and mosquitos became a superior class when they sucked his blood; Cicero avers that all mankind thought that Rome had gone into exile when he departed from that city; Nero, the worst of perverts, has himself deified, and flattered himself that he should soon be able to control the ways of Providence; and Socrates says (concerning himself) that he is moved by certain divine and spiritual influences, and that it is commonly agreed that in some respects he exceeds the generality of men. Again in Plato's Apology we see more egoism when Socrates spoke in his defence before the Athenian judges when he said, "For if you should put me to death you will not easily find such another . . . such another man, O Athenians, will not be easily found; therefore, if you will take my advice you will spare me."

With this somewhat desultory story and review of ancient sex-worshiping peoples fresh in our minds, let us now pick our way cautiously down the webbed and darkened steps of phallicism for a while, and dust off and bring out into the light and before your attention only enough of this mixture of iniquity to carry on this paper to a conclusion.

We find that the sex devotees worshiped at the shrine of, and sacrificed to many gods of mythology. The principal festivals celebrated in honor of Bacchus and Venus were designated the Bacchanalia, the Saturnalia, and the Aphrodisia—the last being the radix of the word aphrodisiac. On the occasion of these festivals the women, young and old, took an active part in them, and carried throughout the main thoroughfares of every village figures of men about 18 inches long, made of wood or other material, to which was attached a pendant phallus almost as long as the manikin itself and which was worked by strings. Or long processions were formed at the head of which the figure of a phallus reclined in the most magnificent car obtainable, or a gold-bedecked chariot or wagon bearing an immense phallus resting on silken pillows and shaded under a richly decorated canopy, was slowly drawn through the festive and merry throngs by gaily caparisoned horses, while Lydian airs of the flute or the lyre and the harp floated over the multitude. For them it was a religious celebration of deep significance —an occasion for universal rejoicing and happiness heralding the Divine Regenerator. It was the awakening or budding time of all life, the quickening of all animate nature. While some repaired to the temples to worship the divine symbol (the phallus) and invoke the aid of that deity in securing fruitfulness, others sang hymns or paens of praise to the phallus and annointed it with choice wines and honey or perfumes, and they placed garlands or chaplets and roses or leaves of the oak around the sacred emblem, finally crowning it with wreaths of ivy entwined with the violet and the blue of the hyssop, in much the same manner as a beautiful maiden is crowned Queen of May.

When the shades of evening deepened and drew the screen between decency and profligacy, the excited and passionate devotees of the phallus threw all restraint aside and gave way to unbridled sensuality and licentiousness. Many believed in living a short life and a gay one and they no doubt considered one behind the times who still acted in accordance with the original significance of phallic worship, namely: the desire of fecundity—the desire for offspring. They believed that beauty when unadorned is adorned the most, and an old writer remarks that it was a beautiful sight to observe the young men and and women of Sparta naked and wrestling with one another during these festivals.

As in ancient times images of the phallus and the yoni were set up by the roadside, in front of the doors of dwellings and in sacred groves

and temples, we find these phallic emblems of sex worship in one form or another in many parts of the world today. In the long ago women considered it a sacred duty to bear children, and at certain seasons of the year they visited the temples and offered their bodies to any man who chose to make known to them his purpose. A rope or other barrier separated the men from the women, but when a man tossed a coin to the object of his choice it was her duty, regardless of her station in life and the size of the coin to attend him into one of the numerous alcoves of the temple and there consummate the act. Once a woman entered the temple she remained there until one of the opposite sex tendered a sacred coin to the phallic deity and performed the act of coitus with her. It is perhaps needless to state that the most beautiful women were chosen first, and it is said that some not blessed with a beautiful face and form remained in the temple several years.

At that time a women who prostituted her body to their deity was considered sacred, and a man who castrated himself in a religious frenzy and then ran through the streets holding the bloody parts aloft, thereby heralding the sacrifice he had made in presenting his generative powers to their god, was ever after regarded with esteem and veneration and as one possessed of divine attributes, and he became one of the priests of the temple. Venus was regarded as a prostitute, and many prostitutes, or courtesans, reached high places in the minds of men during those ages when phallicism and prostitution went hand in hand. Monuments were erected in memory of courtesans, plays were named after them, and one became a queen. Themistocles and Timotheus were the sons of courtesans. Cyrus and Alexander, Demosthenes and Diogenes, Aristotle and Plato, and almost all kings and eminent men of those ages enjoyed the companionship of many courtesans besides their wives. Quoting from Athenaeus in the Deipnosophists we read that even philosophers were far fiercer than dolphins and elephants, and much more untameable, when their passions were aroused, although the general conception of staid philosophers is one of quiet reserve and unruffled serenity.

In Japan today we still find patent evidence of phallic worship, and almost every brothel in Japan has its symbol of the phallus conspicuously displayed above the entrance or within. The inmates of these brothels are often chosen for wives without any apparent hesitancy, and the fact that they have served the purposes of many men is forgotten in the associations of the conjugal union. Indeed, it is often the custom among the Japanese to marry a woman only after she has resided for some time in houses of prostitution, called there tea-houses. Apparently they are of the same opinion as was Aristippus, when in answer to Diogenes, who had rebuked him for cohabiting with Lais, a common courtesan, he replied—"Is it an absurd thing to live in a house where other men have lived, or is it an absurd thing to sail in a ship in which other men have sailed? Well then it is not a bit more absurd to be in love with a woman with whom many men have been in love already."

The nakedness of women is not considered immodesty by the Japanese. And she is of no intrinsic worth to him except as a means to sexual indulgence; she is his property but never his equal. She is valued in marriage only as a means of enjoyment and satisfaction, to keep his house in order, and for the bearing of children. This attitude toward their Japanese women, together with phallic worship, is in strange contrast to the frank hostility displayed by the Japanese to our moving pictures which sometimes depict the act of kissing, for we are informed that kissing is interdicted or frowned upon in the land of earthquakes, while phallicism still continues and prostitution is carried on openly by the Geisha girls.

Travelers inform us that there is a shrine with a phallus four feet high, eight miles from Akashi, near Kobe, and during certain Shinto festivals tiny paper flags bearing the legend Osame tatematsura (respectfully dedicated) are stuck upright in the ground about the symbol. As late as 1874 phallic worship was almost universal in that country, and the symbols were to be seen in many places where they were worshiped by the barren of both sexes. Some were a hundred feet in height. It seems, however, that when Japan lowered the barrier to foreigners the remonstrances of persons from Christian countries resulted in the disappearance of many shrines with their phallic emblems. Some of the smaller phalli were carried away by the curious, while others found a watery grave in some nearby river or lake, or else they were dumped into the hidden passages of a Buddhist temple, where let us hope

the deposits of time may effectively screen them from the sight of man forever.

Phallic worship is still blindly accepted in India and to a much greater extent than in Japan. There the phallus is called the linga by the Hindoos and it is estimated that there are thirty millions of them in that land of Buddha. There, too, they are found in dwellings, in sacred groves, and in the temples of the Hindoo, and the people still follow the old phallic worship of former times, celebrating the festivals of Venus and Bacchus with as much ceremony and eclat as the British laws will countenance. Beautiful Hindoo girls still sacrifice themselves to this sexual god and live in the temples where they consecrate their bodies to that deity, and devote their lives to the satisfying of any man who pays them the fee which is given as an offering to their strange god and used for their support and the maintenance of the temple. Sacred prostitution of women is a very old custom. Records show that women prostituted themselves in the temples of Babylon and Ninevah two thousand years before the Christian era, and that children born of such unions formed a superior class as they do today in India.

In 1865 American travelers saw numerous figures of phallic gods and of kings on the walls of the temples at Thebes depicted with a phallus. Many other archaeologists since that time have discovered similar objects of curiosity during their excavations in Italy, Greece and Egypt. And until recent times tribes on the lower Congo river and the Dahomnians worshiped gods made of wood and clay with a phallus in position. The natives of some of the southern Pacific islands and some of our own Indian tribes still adhere to a religious ceremony in which a young man and woman engage in coitus publicly and without shame, while surrounded by other members of their tribe, who first consecrate the ground by sprinkling it with sacred wine, during which they add to the solemnity and mystery of the ceremony by droning their paens and wailing their incantations. Sex-worship was followed and accepted in one form or another in Egypt, Assyria, Greece, Rome, India, China, Japan, Scandinavia, Mexico, Peru, Borneo, Tasmania, Australia, England and France long before history was written. There is no country in which worship of the generative organs has not taken place some time in its existence.

The phallus was usually made of wood or clay or stone, and sometimes it was made of gold or other metals. In the Walker Museum at the University of Chicago and at the Field Museum there are phalli shaped out of cast iron, volcanic stone, and some of wood that were taken from shrines and brothels of Japan and from other countries. Some are stained pink and some are gilded and painted in various colors, while others are chased with queer designs or fashioned into grotesque figures. Many phalli were used as amulets during phallic times, and were worn suspended over a child's shoulder or like a lavalier they adorned the necks of women.

It rested with the ancients, however, and their progeny, to discover objects which resembled the phallus and the yoni, or bore some of their characteristics and alleged attributes; and in many instances these material substances were worshiped and were invested with divine significance. It appears that their imagination knew no bounds. Nearly everything which bore the slightest resemblance to a phallus or the yoni was regarded as imbued with sacred attributes, and it became an object of sex-worship. And some writers on phallicism have not scrupled to describe all of these things in detail with much unnecessary salaciousness, and quote freely from the bible in their endeavor to prove some insignificant point concerning them and phallic worship. Some of the annotators on sex-worship at least demonstrate one thing clearly, namely, that if one chooses and his arguments fall upon receptive soil, he can prove almost any tenet or doctrine by the bible, and he can then become a true sophist and disprove his original statements by other scriptural writings.

Interesting, too, were the pillars and obelisks shaped like the phallus during the period when phallic worship was at its culmination; the towers of the temples were so constructed that they were cylindrical with a conical-shaped roof. And even a pole set up in a village was a symbol of the phallus around which worshipers danced and clapped their hands and sang their ecstatic and erotic praises during the spring of the year to the god of reproduction. Straight trees were venerated and the oak was considered a sacred tree because of its strength and longevity and it was likened to the age-long power of the phallus.

Any animal which possessed unusual sexual energy, such as the bull, the goat, and the cock,

were also invested with sacred attributes, and Herodotus relates that Egyptian women were sometimes buried with the phallus of a bull. The goat was regarded as such a sacred creature that the ceremony of permitting a ram to meet with a woman in public was done as a sacrifice to the gods, a striking example of the indecency and the debasing influence of phallicism. And it is related that the practice of using a goat in some of the initiation ceremonies of secret orders today is merely an echo of the mystic rights of the ancients in which the priests and priestesses of the heathen temples were required to be initiated into the mysteries of the goat before they could be admitted to the divine rites of Isis, the goddess of fecundity. The god Pan, you know, is depicted as half man and half goat, and Herodotus tersely remarked about this mythical creature: "The cause, however, why they represent him in this form I prefer not to say."

Because the tortoise is androgynous the Hindoos consider it a sacred representative of the creative deity, mainly on account of its great fecundity and length of life. Its head and neck, suggested to the Hindoos an important emblem of phallicism and it is so regarded and worshiped.

Perhaps there is no instance, however, where the phallic worshipers permitted their imaginations to run rampant to as marked a degree as when they compared a serpent to a living phallus and worshipped it accordingly. It was a custom in some countries for processions of virgins to carry living snakes in their hands or draped about their necks while singing and shouting the praises of the sacred symbol, and the snake dances of some of the Indians in Arizona are almost identical with that practice.

But even though the serpent was protected and venerated as a thing sacred over a great part of the world at that time, this respect and reverence changed to aversion and an abhorrence for the slimy snake as time passed, and it was finally regarded as a symbol of the tempter and his evil teachings by the people of many nations. In the course of time it was advanced to the first rank as the source of much that is evil, especially in Christian countries, the archetype of sin—the devil himself, symbolic of all that was unchaste and lustful. When Adam and Eve fell from their state of inherent grace and gave loose reign to the promptings of their sexual desires, the serpent was credited with their downfall and the cause of their expulsion from the garden of Eden. Many are the histories of antiquity ascribing the root or source of evil to the serpent, and exhibiting an entire nation sinking under the ravages of a single serpent. Indeed, histories of even recent times concur in this belief and teach the same doctrine. This allegorical picture of sin and its inevitable consequences is none other than a portrayal of the voluptuous and licentious liberties engaged in by phallic worshipers, which finally led to the physical and intellectual decay of any nation adhering to its tenets and the vicious practices growing out of it—liberties which served as a foundation for insanity and the shortening of human life.

The yoni, which was the female symbol of procreation, was more difficult to typify than the phallus. Many objects worshiped in the sacred rites were made in representation of the female breasts or the mons veneris. Usually, however, the yoni took the form of an opening, and it was called the door of life. As a rule it was pictured with a winged cherub hovering over it, or a celestial archer with his quiver filled with arrows. For the arrow, too, was one of the oldest phallic emblems. Cupid with his quiver filled with arrows was a symbol of the virile organ. Reading psalm 127 we find: "Lo, children are an heritage of the Lord; and the fruit of the womb is his reward. As arrows are in the hand of a mighty man, so are children of the youth. Happy is the man that has his quiver full of them —they shall not he ashamed but they shall speak with the enemies in the gate."

The most common form of the yoni was that made in imitation of the female breast and the mons veneris, and we are told by some enthusiastic writers on phallicism that the pyramids of Egypt were built in honor of the female creative deity: they resemble to some extent a mound or the female breast. This appears to be another instance showing the lively imagination of the ancients and of the writers since that time, who have undertaken to find a similarity between the pyramids and the breasts of women.

During phallic days we learn that boats, the leaves of trees, and even the doors and windows of the temples were regarded with much significance, and classed with objects of worship, because they bore some resemblance to the outward appearance of the yoni. Wine was considered a

favorite symbol of the sexual deity, too, because of its stimulating and aphrodisiac effects, and in various ways it was employed to signify the generative or preserving attribute. Even fish were worshiped because their bodies resembled the phallus, and the mouth of the fish the yoni.

It can be readily understood then that the creed of the phallic worshipers was based upon a belief that reproduction was controlled by two deities represented by man and woman, or the male and female, and they were best typified by the generative or reproductive organs, or objects similar to them in shape and appearance or possessing some of their characteristics. They, of course, knew nothing about spermatozoa and ova, but it was patent even to our first parents after they fell and enjoyed one another, that the creative act was to them the greatest of all pleasures and that it was the one and only means to bring another creature into the world patterned after themselves. It was only natural then for them to regard the generative principle and cohabitation as the culmination of all material and spiritual things; omnipotent and supreme with its pleasures of the flesh and its power of procreation; a something to be adored and cherished as their god of all life and enjoyment.

As the centuries and men swung along down the devious pathways of time, encumbered as they were with this enticing but devitalizing form of religion, which sapped the vitality of sex worshipers, the natural manner of sexual gratification became tiresome and repugnant to man, and he sought newer channels for the satisfaction of libido. The original method did not gratify his perverted tastes any longer; it was inadequate and failed to provide him with that degree of satisfaction which he desired. Reason, although intended for a better purpose, aided and abetted him in his journey around the vicious circle until he discovered here and there, like beckoning sirens, newer and different means of accomplishing an act which in the beginning was intended to be creative alone, the pursuit of which in another manner distinguished him from the beasts of the fields who have remained the same and in conformity to nature since the creation. Disciples of Venus and Bacchus became shamelessly vicious and corrupt, the natural use of the organs of generation was defiled and human society became so degraded that entire nations paid the penalty and became effeminate, debauched, and profligate as we see exemplified in the downfall and dissolution of the Tyrrhenians, the Lydians, and the Romans. Men and women debased themselves abandonedly, with no care but that of present enjoyment, thereby sowing the seeds of misconduct in their offspring. This inherent taint of impurity and degeneracy passed on to posterity, and, like a rank weed, raises its head here and there today in the crimes of the human misfit, the sexual pervert, and the so-called moron. In the commencement of man's life upon earth he was more contented and satisfied with the sexual act accomplished in a natural manner, but soon it became a test of skill and ingenuity to devise new and unusual and unnatural means to stimulate an abused and a tottering passion into increased activity. These unnatural pleasures continued unabated and unchecked until the day came when the minds of men and women began to wither and decay and they satisfied their sexual desires sometimes with one of their own sex, or other wretched practices which only the human mind can conceive, were indulged in unrestrainedly. In the epistle of St. Paul to the Romans, Chapter I, we read:

"Wherefore God also gave them up to uncleanness through the lusts of their own hearts, to dishonor their own bodies between themselves.

"Who changed the truth of God into a lie, and worshiped and served the creature more than the Creator, who is blessed forever.

"For this cause God gave them up unto vile affections; for even their women did change the natural use into that which is against nature; and likewise also the men, leaving the natural use of the women, burned in their lust one toward another; men with men working that which is unseemly, and receiving into themselves that recompense of their error which was meet.

"And even as they did not like to retain God in their knowledge, God gave them over to a reprobate mind, to do those things which are not convenient."

Thus do we see the endless struggle and endeavor—the leaven of purity in man battling against bestiality; of unnatural impulses blighting morality, since Adam and Eve first walked as lovers through Eden and dreamed of the coming of that new being which was the fruit of the first union. Men entered the world to continue propagating the human species in a manner their Creator ordered, but when reason, with free will

and the working out of their own destinies, appeared on the horizon of life, together with the added burden of those natural changes which we know occur at puberty and at the climateric in both men and women, many myriads fell from the paths of chastity and rectitude. They were swallowed up and swirled along in the dark current of lewdness until they finally reached that immense and turbulent sea of nervous diseases, perversion, and unsoundness of mind—the great sea of transgression.

Only those characters imbued with strong wills and a propensity to curb their passions, and those possessing and cherishing the faculty of distinguishing between excesses and natural practices, were able to conquer the malignant influence of the sensual serpent, and live in that state of decency and pure love from which spring the greatest solaces in life except the happiness that comes through the consolation of religion.

Scripture and history abound with the names of unusual and wonderful characters who appeared here and there over the world as time sped onward, and who devoted all their energies and even sacrificed their lives in their efforts to root out and destroy man's vicious excesses and impurities, many of which grew out of and were fostered by phallicism. Moses led his people out of Egyptian bondage and for forty years they quit the land of Pharoah and wandered hungry and unkempt over the desert, while he taught them the blessings of decency and virtue. He exhorted them to strengthen their bodies and their minds by practicing self-control and to abjure that phallic sin which undermined their strength and character, that they might succeed in bringing forth a hardy race of men. "Thou shalt not commit adultery," and the other commandments he delivered to them on Mt. Sinai thirty-four hundred years ago, and he labored unceasingly to implant in their minds the seeds of that truism: "he that would pass the latter part of life with honor and decency, must when he is young, consider that he shall one day be old."

Since the beginning of time, however, the most powerful force which has arisen to combat the evil arising out of sex worship was Christianity, which followed Moses fifteen hundred years later. It taught all that was gentle, and pure and just. Where Homer and Hesiod and Theognis and many men during the long ages that preceded Christ invoked the gods and the good genius to aid and provide a means of vengeance whereby they might punish and destroy their enemies, Christianity eschewed the spirit of revenge and taught the precepts of forbearance and the return of good for evil. It raised women to a social equality with men, and it strengthened the bonds of love between men and women by teaching the excellence and rewards of cohabiting in purity. It taught that polygamy was a grievious error, and that men sinned when they took unto themselves more than one woman or any woman not united in wedlock.

Mohammedans and Buddhists visualized a future existence, promising a celestial harem filled with perfumed women or velvet-eyed nymphs of heaven. Mohammedanism makes the attainment of carnal desires the reality of their paradise, a soft and sweetened bait grasped and accepted by many because it is the easiest and most pleasurable way, and because Christianity makes life a daily task of self-abnegation abjuring adultery. Christianity pictured eternity as a different abode for the good—as a wonderful paradise with all earthly trouble and sensuality missing, the beauties and joys of which transcend the imagination of man.

Is it necessary to repeat that phallicism or sex-worship is a subject full of danger and pitfalls; or to remind you that its emenations and its promises are enticing to the individual morally loose—useful to one seeking an argument and an excuse for his lusts and his perverted desires? How eagerly do novices in sex-worship and disciples of the easiest way feed and ruminate upon phallic writings, moral courts, and erotic trials, and assimilate it all with pleasure and avidity! And how earnestly would many welcome a return of the old practices of sex-worship and extend the cup of welcome and good fellowship to it, just as they have sanctioned the removal of woman's clothing, until she now stands naked and unashamed before us on the stage and on the screen! It is the order of the day to banish purity from life's curriculum, and attend that banquet of sensuality where motley crowds of women exhibit their naked forms, smoke cigarettes, and place the finishing touches on hardened faces. In short, many consider one old-fashioned nowadays—out of tune with the time and people, to even think of virtue or Christianity, or to bother about what their lot

may be after they grace the world with their presence for 70 or 80 years. They read and without hesitancy accept the lessons and the precepts of the Iliad and the Odyssey, which were written a thousand years before the Christian era, and they believe the historical accounts or the literary efforts, as it may be, of Darius and Alexander, and Socrates, and Julius Caesar, some of whom lived 500 years before that time, but they do not believe that Christ spent his days teaching the opposite of phallicism, and some deny that he existed, although he came to the world centuries later.

The trend of present day minds may be seen in one issue of the daily paper where we read a half page advertisement describing Gertrude Atherton's Black Oxen, another article telling us that a foreign country classed as a Christian nation may soon advocate promiscuous intercourse, and still another notice describing in detail the efforts of a sexually impotent millionaire in his search for rejuvenation. Our theatres exhibit life-sized portraits of almost naked women at their entrances and the women in the flesh inside; dance halls permit men and women to engage in loose revelry savoring of the old Bacchanalian orgies; we read that a moving picture actress studies Freud; while a theatrical column informs us that a play entitled "The Courtesan" will soon be with us at one of our theatres to edify our wives and our sons and our daughters. And all this in an age of boasted enlightenment and a so-called Christian nation!

In direct contrast to this sexual banquet of our day, Tacitus, nineteen centuries ago, shows that in some instances even the barbarians had a clearer conception of the real purposes of existence and procreation. In his "Manners of the Germans," who were then classed as barbarians, he says—"When the bride has fixed her choice, her hopes of matrimony are closed for life. With one husband as with one life, one mind, one body, every woman is satisfied; in him her happiness is centered; her desires extend no farther. Both parties wait to attain their full growth; the match is then made, and the children of the marriage have the constitution of their parents." Caesar, too, praised the ancient Germans, declaring "The young men who are not acquainted with the union of the sexes till the age of twenty are highly applauded." And again, he says—"ignorance of vice accomplished more among barbarians than all the boasted systems of a polished nation." Quintilian observes on the same subject—"Great care should be followed in teaching the young. They see and listen and endeavor to imitate. What is bad generally adheres tenaciously. Let the child, therefore, not learn in childhood what he must afterwards take pains to unlearn." And if certain misguided persons were permitted, sex-worship, or its counterpart, would be taught in our schools today.

Many there are who consider it a distinguishing mark of intellectuality to abjure all religion and all its teachings, and they smile indulgently at the deluded Christian enmeshed in his myths and his ignorance and moral darkness, as is the wont of one of our prominent Chicago barristers; and in much the same manner as Herodotus, the Father of History, was forced to smile when he heard persons describing the earth as round. Such persons stand with their backs to the light, and if their logic and plan of reasoning were followed we would believe that all men are morally equal, and we would accept the literal interpretation of that metaphysical aphorism, "Evil is not but it is a lack of the good which is befitting; evil is only a privation—a want of good." With them the pleasures of the garish day usurp the thoughts of death and a future life. The concern of the sexual devotee is worldly pleasures alone, to whom the practice of purity and self-denial is irksome and unworthy of any serious thought.

St. Augustine who led a profligate and a dissolute life in the arms of concubines believed, too, in the pleasures of the day until the star of faith arose and he embraced its teachings and purity instead. After his conversion he evinced his belief in the transitory nature of all worldly affairs and the folly of men who strive to blind themselves to the shortness and uncertainty of human life, when he declared: "Whithersoever the soul of man turns itself, unless towards God, it is riveted upon sorrows, yea though it is riveted on things beautiful." And Socrates, although a pagan—he who was considered the wisest man that lived, believed that men were not created for worldly pleasures alone, when just before drinking the conium, he says, in Plato's Phaedo, or the Immortality of the Soul: "Can the soul then, which is invisible, and which goes to another place like itself, excellent, pure,

and invisible, and therefore truly called the invisible world, to the presence of a good and wise God (whither if God will, my soul also must shortly go), can this soul of ours, I ask, being such and of such a nature, when separated from the body be immediately dispersed and destroyed as most men assert? But it is right, my friends, that we should consider this, that if the soul is immortal, it requires our care not only for the present time, which we call life, but for all time."

Sexual teachings, with its many ramifications for evil, permeate and threaten all strata of society today. It greets us on every hand and its beguiling influence seeks to engulf our children. And it is all merely a reversion to type, an attempt to open the flood gates of the old phallic practices with their indifferentism and their repudiation of all religion except that under the soft and alluring wings of Bacchus and Venus. Christianity is the beetled and unscathed cliff standing guard and undaunted against the allied waves of agnosticism, and pantheism and atheism, while the voluptuous sirens of sex-worship and the easiest way sing their Lorelei of pleasure, impurity and lust.

CONCLUSION

1. Much of the insanity and unsoundness of mind with us today can be traced back to phallicism or sex-worship and to the many abuses growing out of those practices.

2. The shortening of human life was caused mainly by excessive stimuli of the sexual organs, and the wasting of those secretions which God placed within us for a certain definite purpose, namely, the propagation of the human species.

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THE OUTLOOK IN THE TUBERCULOSIS PROBLEM.*

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After the tubercle bacillus was discovered by Koch in 1881, it was not unreasonable to expect that the tuberculosis problem should soon be under control. There is no instance, however, in the annals of medicine, where such was farther from the truth, because contrary to that conception, tuberculosis has proven to be almost as great an enigma following the discovery of the bacillus as it did prior to it. The epidemiology, infection and immunity of tuberculosis have been and still are perplexing questions. Through careful and painstaking researches, however, light is gradually falling upon these darkened corners of medicine.

It is our purpose, therefore, to review the different steps that have been made and to present the fundamentals of the tuberculosis problem with special emphasis on the probable outcome as interpreted from the trend of events during the past. Very much the same as a statistician is able to interpolate and exterpolate curves from data on hand, so may we make predictions regarding the future of tuberculosis by an intelligent interpretation of reliable data of the past.

For the sake of convenience we shall divide the whole tuberculosis problem into a few rather crude divisions, principal among which is the combined efforts of the various phases of laboratory research. Let it be emphatically stated, however, that there is no intent to detract from work that is being done at present outside of this field. The principal point of the discussion will be that the knowledge that is gradually being acquired through laboratory research will eventually be the means of solution, as much as there ever will be a solution. By a rather careful study of statistics, we can balance up many phases of the problem and show that the tuberculosis problem will continue to yield but slowly to our present methods of handling.

The first point or hypothesis is that, in every community a balance is ultimately reached between the morbid effects of congestion and industrialization and an acquired immunity. This does not mean that acquired immunity will solve the tuberculosis problem or allow us to fold our arms and say "let nature take its course," for "nature's course" is not suitable to us in this instance. Nature's method is a survival of the fittest, a destruction of the weakest whether it is by the best means of adaptation to life, on the one hand, or by vulnerability to destructive organisms, on the other. Tuberculosis is only one of nature's varied means of destroying those who have violated laws of life. It may be called a biological counterpart of our civilization. We must not overlook the fact that the world was not made for us any more than for any other living protoplasm; that wherever living

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protoplasm has the proper environment to grow and reproduce in its own way it will do so whether it is the human body or the tubercle bacillus; and that so long as we cultivate tubercle bacilli in our bodies they are going to respond to this cultivation. Our advantage over other forms of life is that we developed the power to reason and can select our environment to a considerable extent.

In fact, the congestion of the race seems to be the *sine qua non* of tuberculosis. Numerous other factors file in and take their respective places in order but the fact that we are forced to associate with others is the first and most important etiological factor outside of the bacillus itself. As an illustration, we may cite the experience of Dr. Fox at the Philadelphia Zoo. By strictly isolating tuberculosis-free monkeys, he was able to keep them free from tuberculosis. Unfortunately the human race can't be isolated in that way and tuberculosis infection, therefore, is liable to remain with us indefinitely just as it has been with the race from the remote past as shown by Moody[1], and ancient Hebrew, Greek and Indian authors.

Furthermore, congestion is almost inseparable from indoor life. At the time that man began to move into caves and shelters, perhaps tuberculosis appeared. The inside life has at least two drawbacks, first it causes closer contact between individuals and second, it deprives the individual of the rugged physique that is developed in the open air and sunshine. A most excellent illustration of this is afforded by the North American Indians. These strictly out-of-door people according to Benjamin Rush[2] in 1783, were not known to develop "consumption." This is almost 200 years after the first contact with the white race, surely enough time for the disease to develop. The next century, however, was very different. In reporting on tuberculosis among the North American Indians, the committee appointed by the President of the National Association, came to the conclusion that the high death rate from tuberculosis was caused by the depletion of wild food. This caused starvation and more and more dependence on the white man and his modes of life. We see that the changed mode of life then had a mollifying effect that was disastrous. Wild animals brought into zoos react in an identical manner. An explanation of these facts would take up too much space. Today, according to the report, the disease has been checked among the Indians and the death rate is approaching that of other peoples. This change has taken place within six or seven generations.

What has happened to the Indians has happened to every race since antiquity. That is, as the race becomes infected, due to congestion, the mortality is at first high, then a gradual decrease occurs until a balance is reached between the amount of congestion and other environmental factors and an acquired resistance that for want of a better term we may call immunity. If this immunity did not develop within a few generations no race could survive long, for the death rate among primitive peoples when the disease develops is very high. Drolet[3] in New York City, gives us the most valuable figures to substantiate this claim, although many others are also trustworthy. The value of these figures lies in the fact that they are compiled in the same city and under the same general conditions, a fact that lends great weight to an interpretation of racial differences. The Jews head the list with a death rate of 86 per 100 thousand. Following in order are the Roumanians, 92; the Americans, 108; the Italians, 122; the French, 130; the Germans, 133; the English, 136; the Austro-Hungarians, 165; the Scotch, 181; the Swedish, 202; the Swiss, 217; the Greeks, 228; the Norwegians, 249; the Irish, 306; the Finns, 342, and the Negroes, 398 per 100 thousand.

We see by these figures that the races that have been associated longest in the centers of civilization are the ones that have the lowest death rate from tuberculosis. This point is extremely significant and may almost be formulated into a law. Every race so far as we are able to learn, seems to pass through a definite cyle of varying types of tuberculous infection. When the first infection comes, the type of tuberculosis is acute and the exudative lesions are produced such as tuberculous meningitis, pneumonia and generalized infection, the death rate in this class is extremly high. L. Cummins[4] stated that the death rate in African troops from tuberculosis in the late war was more than all the rest of the British Army. A few quotations of Cummins are quite pertinent at this point:

In 1917-18 "more death from tuberculosis from a few companies (ca 11000) of African

than from the whole of the British troops in France."

"The Indian divisions in France in 1916 showed a tuberculosis incidence of 27.4 per cent. as compared with a case incidence of 1.1 per cent. amongst British troops."

"The Sudanese soldier who contracted tuberculosis was doomed—the disease ran a course of extreme rapidity."

"The susceptibility of Africans and other primitive races to tuberculosis is the susceptibility of virgin soil."

Metschnikoff found amongst the Kalmuks that the farther from civilization they were, the less tuberculosis infection he found. Calmette and Borel found similar figures for the French colonial troops. Ziemann found among the Bantu negroes only 3 to 5 per cent. positive Pirquet reactions in more than 700 examinations.

As the various races continue to associate where infection is prevalent, there is a gradual diminution in the death rate over and above all other factors until finally there seems to be an equilibrium reached between the acquired immunity and the infections due to congestion and environment of civilized life. In the ancient civilizations, we are unable to draw any conclusions for obvious reasons but since the time of the Roman Empire, it is not difficult to apply this rule. We observe that the races that have been associated longest in the centers of civilization have the lowest death rate. The Jews for example, who antedated the Roman Empire for one thousand years or more, head the list as everyone knows, next comes the Italians, then the English and so on down to the races that have had little exposure. It is readily seen that, as the active centers of civilization have shifted from one place to another, tuberculous infection has gone with it and that the ones that have been associated the longest in these active centers have the most acquired immunity and the lowest death rate. There is one apparent exception to this rule and that is easily understood when interpreted in the light of our modern knowledge of tuberculosis immunity. We speak of races *that have* been in the centers of civilization and still have a poor grade of immunity. Such for example, are the Greeks[5], the Egyptians[6], the Persians[7], and perhaps the East Indians.[8] All of these civilizations, however, have thrived prior to the Roman civilization and become inactive or decadent and therefore, the immunity that they perhaps once had has been lost just as in an animal experimentation it requires repeated injections of living organisms to retain immunity.

It may seem incredible, but these changes have been observed by pathologists to take place in a short period of time. Robertson[9] of the Mayo Clinic has recorded this fact and every clinician and pathologist knows well that the varying grades of immunity produce different types of tuberculous disease. For example, the negro or the Finn produces a different type of tuberculosis both clinically and pathologically from the Jew or the Italian. Robertson's observations are particularly valuable because they confirm in the human individual observations that have been made by Römer, Trudeau, Krause, Webb and others, in guinea pigs by the use of avirulent organisms or with some particular mode of inoculation. This confirms the belief, therefore, that even a non-immune individual in a short period of time may develop an immunity to the disease by a definite mode of infection.

While we do not know the most favorable mode of infection in man, in the guinea pigs, however, exhaustive studies have been made, and much information has been acquired regarding the immunity reactions following a tuberculous infection. Webb[10] has compiled the immunity phenomena of tuberculous infection and there is no need to go into the details of them here. It seems, however, that we may divide immunity reactions into two groups: first, the type that is represented in the immune races that have been developing an immunity over a long period of time. This type of immunity seems to protect against infection by an increase of fixed tissues, and a tendency to form epithelioid tubercles. We might term it the fibrogenetic form. Second, the type that develops following an infection by the tubercle bacillus. This type seems to fall more into the general class known as allergic reactions. The body cells appear to be sensitized to tuberculous toxin or to the products emanating from a tuberculous focus. It is partially non-specific in character and is roughly proportional to the frequency and quantity of infection. This property of the cells is responsible for the Koch phenomenon, the focal reaction and various other reactions in the tuberculous individual. In small doses, development of this quality in the cells ap-

pear to have a favorable action on the disease. There seems to be an exudation around the focus and a walling off of it by an inflammatory capsule. In larger doses, however, it merely acts to spread the disease by excessive exudation. Therefore, the acute or individual type of immunity is that type chiefly responsible for the exudative forms of tuberculosis. As a retrospect of the field of immunity, it seems that the difference between the immune and the non-immune is that the former is able to react more rapidly and in the proper manner to stop the progress of the bacilli from one point to another, and that any individual may in time develop this quality in varying degrees depending upon the quantity and duration of infection whether this is in the life of the individual or over past generations.

Before leaving this phase of the subject, we wish to clear up, if possible, the part that industrialism plays in tuberculosis. During the early days of modern industrialism before the introduction of open air factories, medical inspection and the general social betterment of the working class, there was a very high death rate among the working classes. The increase in congestion, the lack of protection to workmen, the long hours and hard work were no doubt responsible for it. Today the same conditions do not hold because all these environmental factors have been altered and medical inspection has been improved. Collis[11] states that the death rate in Sweden during the early part of the last century was relatively low and the time of maximum incidence was fifty years of age or over. But when modern industry and better means of communication came in after 1870, the death rate rose considerably and the age incidence was shifted more into the young adult life from which the greater portion of the laborers are drawn. Similar statistics for Ireland, Scotland, England and other European countries are given and all indicate the profound influence that industry bears on tuberculosis incidence. To clinch the argument he uses the figures of incidence for females during the war in which the increase is very striking.

The second point that we desire to make is that the increased tuberculosis morbidity following other diseases will decrease in proportion to the general death rate and will eventually approach an equilibrium. This point really needs no extensive comment but is included for the sake of completeness. Reliable statistics along this line bear this out. The death rate in the United States from 1900 to 1920 not only shows the tuberculosis death rate to roughly parallel the general death rate, but during the influenza epidemic in 1918, as the general death rate rose so did also the tuberculosis death rate. A mortality chart of the British Isles from 1870 to 1920 shows similar results. In fact, by closely scrutinizing these charts, we wonder whether the general death rate has been influenced by our tuberculosis campaigns or whether the tuberculosis death rate has been lowered by the general improvement brought about by modern scientific medicine. No doubt both factors have played their respective roles.

The next point that we desire to discuss is that by our persistent methods of isolating open cases and by proposed methods of segregation that we will eventually (after a century or two) reduce the immunity of the race to such a degree that even though infections may be rare, morbidity and mortality will counterbalance it due to this lack of immunity and that here again an equilibrium will eventually be established beyond which we shall be unable to advance. There is no doubt in anyone's mind about the universality of tuberculous infection in cities today. This has been so thoroughly demonstrated that it really needs little comment. Krause[12] has reviewed the work of various phthisiologists over the world and has shown in a striking manner that tuberculous infection is acquired at an early age and becomes almost universal by the age of adult life.

From observations on various other diseases, it is indeed an optimistic individual that will make any claim relative to the abolition of tuberculous infection entirely. In such diseases as smallpox or diphtheria where first-class means of protection against the disease are available, where the carrier state plays a lesser role and where the acute form runs a rapid course with a rapid disappearance of the virus from the body, still these infections are rather widespread throughout the world and we seem to have reached an equilibrium beyond which we cannot go. It is unreasonable, therefore, to expect us to do more in a disease where the carrier state almost perpetually exists and increases in proportion to the number of contacts between individuals. It is true that in country places, as

Slater has recently shown, tuberculous infection is perhaps acquired later in life if it is acquired at all. As people become more and more isolated, the disease becomes less prevalent, but when these non-immune individuals are exposed to the infection, their disease is all the more fatal as we have stated previously. Therefore, the efforts being exerted at the present time should be continued as they are, but rather with more emphasis on eliminating the massive doses and the prevention of morbidity. It may seem strange, as Drolet has shown, that the children of tuberculous individuals do not develop tuberculosis to the extent that other children do. While this data is interesting and hard to interpret, yet no one would be so revolutionary to advocate the cessation of activities that attempt to prevent infection by the tuberculous, especially in infants and children.

Naegeli, Ghon, Opie and others have corroborated this idea of universal infection by pathological examinations of non-tuberculous individuals. In every instance the remnants of tuberculous infection have been found in practically every individual. Taken with the experimental work of Gardner[13] who found that tuberculous lesions produced in guinea pigs with an avirulent organism, could be completely resolved leaving no trace, it certainly bears out the other workers' findings and perhaps accounts for a great number of infections that leave no trace. In our own autopsy work, we have noticed that patients having a moderately advanced tuberculosis with physical signs to the third rib, will have as few as 6 to 8 scattered healed nodules barely perceptible to touch in the apex. These observations have been made on patients dying from some other cause after a period of treatment.

If it is our duty to concentrate on the prevention of morbidity rather than infection, how are we to proceed? Taking it for granted that massive doses from careless patients must be eliminated by isolation, it is easily said that we should seek out the prospective tuberculous and educate them in a dozen ways, but how are we to know the prospective tuberculous? It means that every living man, woman and child should come into this class and that every insidious condition that causes malaise, anorexia, loss of weight and other symptoms of smouldering tuberculous infection for which no other good cause is found, should be treated as tuberculosis until proven otherwise or until the symptoms are gone. We know that everyone in cities receives the infection in a variety of dosages and manners; we know that tubercle bacilli, tuberculin and tuberculous tissue are highly toxic, so that when these toxins are liberated in an organism there are symptoms of toxemia which may be manifest in a hundred ways by action on the nervous system, gastro-intestinal tract, etc.; lastly we know that anything that may lower the condition of the host below par enhances the growth of the smouldering focus of infection and the farther below par the greater the risk.

Where are we to break in on this condition? Shall we inaugurate a campaign of education in the public schools, in the press or in special health magazines and educate the public? Very good, but it will never suffice. It will do good indeed, for it has done good, but how can we expect lay people to master facts that it takes physicians many years to understand and even then our knowledge is very incomplete? Lay people should continue to receive propaganda, but the general practicing physician is really in the point of greatest vantage and should increase his knowledge of this protean disease. It is the physician who sees the under-nourished child; the child who has no appetite; the patient following a severe disease; the pregnant mother. The physician should acquaint himself better with the remote predisposing causes of tuberculosis and should not hesitate to warn his charges when even the remote causes may be present. In a disease like tuberculosis, he would not be injuring his practice by acting as a teacher of tuberculosis. There is, however, a limit to the amount of good that can be done by education of either layman or physician. There are, unquestionably, conditions that arise in the history of every family that cannot be ameliorated by any preaching no matter how good. It brings us to the next point, the social and economic phase.

The tuberculosis problem, therefore, rests on the economic condition of the individual family or community and will fluctuate with it. Our duty is to bring about ways and means to better the social and economic condition of the needy whether they are tuberculous or not. A starving family will always be soil for tuberculosis and conversely tuberculosis will always prey on these people who have unfavorable environment of

every sort, lack of food, poor air, unhygienic surroundings; lack of sunlight, overwork, congestion and mental irritation. There are many reports to show that tuberculosis increases with the price of bread and living commodities and with decreases in wages. An excellent example of the influence of economic factors is afforded by central Europe following the late war when all other factors previously mentioned were not interfered with, yet the economic condition was deplorable and with this one variable factor, the death rate from tuberculosis rose two or more fold in countries in which the death rate was normally low when the economic condition and medical care of the tuberculous was good. The medical handling of the tuberculosis in this case also depended on the economic factors. In other words, there was in operation two of the most detrimental factors: a breakdown in the anti-tuberculosis machinery, plus starvation and economic collapse, the latter bringing tuberculosis and the former unable to care for it. The more important phase of the problem is unquestionably the one that permits or causes the morbidity, because after morbidity it is a considerable minority that go on to cure, the rest entering the mortality column ranging from 1 to 20 years. Therefore, the work that improves the economic status bears more fruit than the more difficult although imperative treatment. This phase of the problem is, therefore, thrown back on the citizen body of the community. It becomes a duty of citizenship. The prosperity of every group of citizens is essential, the farmer as well as the bricklayer; the clerk as well as the tailor. It means a continuation of improved conditions of life and labor; shorter working hours; better wages; better homes; more air and sunshine; more holidays and vacations; and improvement of working conditions.

More and more one is impressed with the doctrine of Armstrong as quoted by Krause[14] that the reduction of tuberculosis (and other diseases as well) is proportional to the money spent to control it. You can buy a dollar's worth of health for a dollar. This, of course, means that the dollar goes to help quarantine; to assist treatment and to better the social condition. When the family is economically strained, it means assistance by any means possible; in fact, it means the stopping of all the leaks along the line.

Coming to the last point of the discussion we feel hesitant about appearing to place emphasis on the field in which we are most interested. In reality this is not the meaning. I recognize every constructive act done by the vast army of men in other branches of the work and may compare our work to the work of the Chemical Warfare Service in the late War—rather small and inconspicuous, but very vital in the outcome of the struggle.

In the tuberculosis struggle the field of laboratory research has ever been the pacemaker. In the last century, Villemin, Kuester, Conheim, Rokitansky, Koch and Ehrlich led the way from a bacteriological and pathological standpoint. Von Behring, Cornet, Flugge and others from the epidemiological; even the clinicians such as Laennec and Trudeau turned to laboratory research for much of their results. In this century there is no exception to this rule. In fact, laboratory research is gaining momentum. It is encouraging to note that the National Association has set apart a fund for tuberculosis research and already much good work has been done. Numerous other institutions are devoting a great deal of time and expense to tuberculosis work—not the least of which is the Research Laboratory at the Municipal Tuberculosis Sanitarium, Chicago. The general aim of this work is to gain a more complete chemical and biological knowledge of the parasite, the host, and the two taken together. The work that has been done and is being done will be briefly discussed in that order.

Of all the achievements of the work on the tubercle bacillus the most important has been the isolation and identification of the heavy sterol or wax that surrounds the bacillus. There is little question about the actual identity of this substance isolated by Tamura and called Mykol. This heavy cholesterol-like wax forms a protective shell around the organism that must be reckoned with in any experimental work done. The solubility of this substance as well as of chemicals in this substance must be learned if we are to find anything that will kill the organism, because penetrability depends on solubility. Of the other numerous constituents we need only say that much of the biochemistry of the organism and its products has been worked out. It has been found by various authors that the tubercle bacillus liberates enzymes that assist in the preparation of its food or weaken its host. Wells and Corper[15] found fat splitting enzymes. Cor-

per and Sweany[16] found a tryptase, ereptase, peptase, and urease. Kendall, Day and Walker[17] obtained similar results. Long[18] has concentrated tuberculin and has worked out a great deal of the chemistry of it. Pinner[19] has just completed a research that has in a general way determined the chemical composition of tuberculosis antigen and antibody. We know in a general way, the metabolism of the bacillus by cultural studies. Nocard found that it grew better with glycerine. Dorset found that egg medium enhanced its growth and so on until we now know all the elements that it needs as well as many other biochemical properties.

Regarding the host, we shall pass over the early pathologic discoveries and mention the recent work which has been chiefly that on the living tissues by vital staining. Maximow[20] and others have produced tubercles in tissue cultures and have shown the genesis of the tubercle with the cells entering its formation. Foote, Haythorne, Permar and others have done enlightening work along the same line. Soon we shall be able to experiment on the disease and watch the process under the microscope. A great deal of research has been done on the exudates and body fluids. Sweany, Weathers and McCluskey[21] made an exhustive study of the chemical changes in the blood during various types and stages of tuberculosis. Very interesting findings were recorded. All this information is going to be valuable when we come to apply a therapeutic remedy. It will give us a basis on which to work and afford criteria of healing that we have not at hand with our present clinical facilities.

Now as to an actual remedy for the disease, tuberculosis, that is, the parasite plus the host, we may look to one or more of four different sources. The first of of these is virtually, vaccination. Earlier we mentioned the possibility of a gradual decrease in immunity due to the efforts at isolating the open case. This fact need have no terrors for us because recently Calmette[22] has abundantly proved that artificial immunity can be conferred on human infants that will protect them from tuberculosis. This work was based on 20 years work in preparing and trying out an avirulent bacillus. If we ever find that the necessary immunity is failing, it will be a simple matter to restore it and that in a better graduated method than nature does.

For the group of patients that have actually acquired the disease there are various things that lend encouragement: laboratory methods now are able to establish a prognosis; we hope soon to be able to make an early diagnosis as well. Further than this, there may be produced a passively immune serum that will act against the various enzymes of the bacillus, thereby crippling it and enabling the body to throw off the parasite. It will require a more highly purified antibody than has yet been produced, but it is far within the realms of possibility and will approach a probability as chemical knowledge increases. We shall pass over the possible value of rays of light with the statement that the sun's rays or similar rays appear to exert a marked favorable stimulation upon the body and body functions which will greatly assist the tuberculosis patient. The ultimate results of such treatment cannot at this time be foretold. We know that if certain rays can be made to reach the bacillus that it will be killed. Such has not yet been possible. Last of all should other attempts fail, we must fall back on chemo-therapy. By this means we may find a substance that will either affect the bacillus unfavorably or the host favorably. Perhaps the latter will be the easier to find. Numerous attempts have been made with chemo-therapy, notably by Koch, Von Linden, Corper, Lewis, DeWitt and quite recently Mollgaard and others. We have in our laboratory launched upon a program of chemo-therapy that has produced many interesting results, although no agent that has yet measured up to the requirements. There is no telling how soon someone will be fortunate enough to find a valuable remedy to check the disease when it is once begun, to shorten the convalescence or actually save patients' lives. If it is accomplished, it will be with the aid of all those who have contributed to the sum total of knowledge of tuberculosis. All those who are bearing the brunt of the labor in the cause of tuberculosis, in whatever field they may be, must share in the honors.

BIBLIOGRAPHY

1. Moody, Roy L.: The Antiquity of Disease, Univ. of Chicago Press, 19923, p. 90.
2. Rush, Benjamin: Quoted in Thwaite's Jesuit Relations, Edition VI. p. 263.
3. Drolet, Godias J.: Amer. Rev. of Tuberculosis, 180, Nov. 1924.
4. Cummins, S. L.: International Jour. Pub. Health, 1:137, Sept. 1920.
5. Rondopoulos, P. J.; Greece Medicale, July-October, 1919, xxi, 41.
6. Dolbey, Robt. V.: Lancet, London, June, 1924, ccvi, 1153.
7. Marrable, H. T.: Dublin Jour. Medical Science, cxliv, 25.
8. Petersen, Wm. F.: Amer. Rev. of Tubere, 1919, iii, 500.
9. Robertson, H. E.: Minnesota Med., Vol. 7, pp. 543-6.

10. Webb, Gerald B.: Amer. Rev. of Tuberc. 1923, viii, 93.
11. Collis, Edgar L.: Tubercle, iv, 241 .
12. Krause, A. K.: Rest and Other Things, Baltimore, 1923, p. 31.
13. Gardner, Leroy U.: Amer. Rev. of Tuberc., vi, 163, 1922.
14. Krause, A. K.: Rest and Other Things, Baltimore, 1923, p. 131.
15. Wells and Corper: J. Infect. Dis. ii, 888, 1912.
16. Corper and Sweany: Jour. of Bact. iii. 129, March, 1918.
17. Kendall, Day and Walker: J. Infect. Dis. xv, 433-451.
18. Long, Edmond R.: Summarized in "Tubercle," Vol. 6, p. 128.
19. Pinner, Max: Unpublished.
20. Maximow, Alex.: J. Infect. Dis. xxxiv, 549. 1924.
21. Sweany, Weathers and McCluskey: Amer. Rev. of Tuberc., viii, No. 5, Jan. 1924.
22. Calmette, A. Guerin C., and Weill-Halle, B.: Presse Med., July, 1924, xxxii, 553.

DISCUSSION

Dr. Clarence L. Wheaton, Chicago: Man will ever be susceptible to tuberculosis until those economic and social problems are solved that have so much to do with the lowering of his resistance and creating this susceptibility to the disease that ends in tuberculosis.

The modern civilization, the tendency to overcrowd, the intense nervous strain incident to various occupations, health habits and certain trades of industrial life, all have their importance as predisposing factors in the physical breakdown of the individual.

In the solution of our tuberculosis problem the curing of the disease is quite unimportant as compared to those measures taken to prevent acquiring the disease and to prevent its dissemination. The widespread educational propaganda as to right living, proper housing and the control of those already infected, plays a most important role. This, together with the strict enforcement of all laws for reporting and controlling tuberculosis in every municipality, will have its effects in the lowering of the morbidity and mortality from this disease.

All students of this subject must be impressed with the value of our prophylactic work among children in the anemic division of our public schools. The results accruing from the physical upbuilding of the child fully justify every item of expense incurred.

Through long exposure to tuberculosis and insidious infection we may hope for a limited degree of racial immunity. But this in itself will not eliminate the disease. The economic and social problems of every day life will ever demand our attention and measures for their solution must be considered if we hope to eradicate the disease.

The accumulated facts incident to the progress of our knowledge relating to immunity are unfortunately of less practical application in tuberculosis than in many other pathological conditions of a less complex nature. Tubercular toxemia not being due alone to the Koch bacillus, we must consider the products set free in the human organism after the death of the bacillus, a toxic element, also a toxemia so little recognized after tissue death at the site where the tuberculous process evolves and finally a toxic element determined by the microbic associations.

In Belgium 40,000 animals have been immunized. This is a relative immunity lasting at least a year. The principles in experimental inoculation toward the production of immunity show that the underlying principle in the biologic therapy of tuberculosis necessitate the introduction into the body of bacterial agents estimating resistance to infection.

The production of immunity is a complex process, but it is no longer a matter of dispute that results of considerable value have not been achieved. Insurmountable obstacles surround the workers in this field of research through whose labors has evolved our present day knowledge of the theories of immunization.

I am very optimistic regarding the future so far as concerns the discovery of something that may help us in curing tuberculosis. I believe that if anyone is able to discover that it will be in Dr. Sweany's laboratory. He is doing a remarkable amount of original research work there.

At the next meeting of the National Tuberculosis Society I think the results of this work will be presented.

Dr. Henry C. Sweany (closing): Dr. Wheaton mentioned about the active immunity work done in Belgium on animals. This field is so great we couldn't cover it all. There has been a great deal of work done in artificial immunization against tuberculosis. In over twenty years time in 230 generations, Calmette has developed an avirulent tubercle bacillus vaccine that he has used successfully in protecting children from tuberculosis.

Should we ever find that our immunity is failing some such vaccine as this may be conceived that will give us that desired immunity.

NONMALIGNANT STRICTURE OF THE RECTUM

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A stricture of the rectum is an obstruction in the caliber of its lumen as a result of congenital malformation, diffuse inflammation or new growth in the intestinal wall.

It affects females more frequently than males, Wallis[1] says 5 or 6 times as frequently. Poelken, who has collected 215 cases reported in the literature, notes that 190 were women and 25 men, or 86 per cent. were women. Hartman[2] reporting 86 cases, met in a general surgery practice, noted 70 women among his patients.

The stenosis may be due to developmental failure, trauma, gonorrhea, tuberculosis or syphilis. Hartman says 34.8 per cent. of his cases had undoubted syphilis. This frequency of syphilis in patients suffering from strictures of the rectum is universally acknowledged. Tuberculosis may develop after the stricture on account of the disturbance to nutrition brought about by the rectal lesion. The status of dysentery as an etiological factor in rectal strictures is bitterly contested,

some authors claiming and others denying that rectal stricture follows dysenteric ulceration. I have had but limited experience with dysentery and have not seen stricture in any of these. The so-called spasmodic stricture also deserves consideration.

Cancerous obstruction has been dealt with elsewhere. Any destruction of the rectal tissue, inflammation of the submucosa or deep coats of the rectum may terminate in stricture.

In form these stenoses may be

(a) Annular—like a ring about the rectum.

(b) Tubular—where from one to several inches of the rectum is involved in its entire circumference and in all of its coats.

(c) Linear—where a cicatricial or fibrous deposit invades but part of the circumference.

(d) Valvular—strictures which are hypertrophied Houston valves interfering with the passing of the feces.

Any of these may produce large or small calibered stenoses.

Obstructions which allow but a small channel past them produce well known and easily diagnosed symptoms, but minor obstructions which cause but a moderate degree of stenosis are constant sources of neuralgic and reflex symptoms which may be difficult to relieve.

Small cicatricial or connective tissue deposits in the walls of the rectum are constant sources of irritation because of the friction produced by the passage of fecal matter over them. It is not necessary that the caliber of a canal shall be so constricted as to form an obstruction in order to produce irritative symptoms.

Congenital Strictures have been dealt with elsewhere under the consideration of malformations of the anus and rectum. They are frequently unobserved until puberty when the changes in diet and personal habits direct attention to straining incident to defecation. Sometimes the larger strictures are unobserved until later life and are treated as cases of simple constipation until the development of fissures, hemorrhoids or proctitis brings the sufferer to an examination. This is usually about the age of puberty.

The previous history of congenital stricture differs from that of inflammatory which latter always succeeds an infection or ulceration within the rectum while the congenital stricture has no early history other than a gradually increasing constipation which, however, has existed from infancy.

The stricture will be located 1 to 1½ cm. above the anus as a band or fold. The sphincter is not involved in the stricture although it may be somewhat hypertrophied.

Neoplastic Stricture.—The circular muscles of the rectum provide fibers which ramify through the pelvic areolar connective tissue and unite with supports of other pelvic organs by blending with the ligament of the bladder, the broad ligament of the uterus, and the sheath of the levator ani. Inflammatory processes within the rectum or in

Fig. 1. Constriction of Rectum at the site of the Rectal Valves.

any other pelvic organ may so fix these fibrous fingers as to cause traction on the circular fibers of the bowel. These fibers also constitute tracts along which inflammatory extension may travel and invade the rectal wall. Most instances where Houston's valves produce stricture are associated with pelvic cellulitis.

Houston's valves are anatomical shelves of the circular muscle fibers which project into the rectal lumen. They are, of course, covered with mucous membrane and are normally resilient and non-obstructive, but they may be traumatized or inflamed or ulcerated with consequent infiltra-

tion and contraction, and thus become the site of stricture. (Fig. 1.)

A papilloma may attain such a size as to mechanically block the rectum as may also condyloma, polypus or fibroid, but these are not true stricture of the bowel. Malignant masses of carcinoma or sarcoma may have an associated fibrosis which produces stricture but the cancer is the important condition the extirpation of which, if feasible, includes removal of the stricture.

Obstruction of the rectum from pressure upon it by enlargements of the other pelvic organs, i. e., the uterus, ovaries, fallopian tubes, bladder or prostate cannot properly be called stricture of the rectum, but they produce similar symptoms and may excite an inflammation in the walls which will eventually produce stricture.

Spasmodic stricture or phantom stricture as it is sometimes called on account of its imaginary existence is a transitory stenosis of but short duration, but while it lasts it interferes with the free passage of feces. Much has been written pro et con, its existence being denied by many authors, although others have reported instances occurring at the level of the attachment of the levator ani muscles and at the rectosigmoid junction. It differs from the fibrous stricture in that the spasmodic stricture is an irregular contraction of the muscular tunic reflexly in response to irritation and continues only so long as the irritation is kept up and is not attended with organic changes.

This spastic contraction of a narrow ring about the thickness of the free margin of a rectal valve grips the examining finger for a few seconds or minutes and then relaxes allowing the finger to pass up the bowel without hindrance. It is usually found one-half to two inches above the anus. This is about the level of the lower Houston valve and Krouse[8] believes that is the structure involved.

The symptoms of this type of stricture may be so obscure and baffling that the rectum is never examined; and on the contrary there may be almost unlimited pathology in the rectum without the production of spasmodic stricture.

Sufferers from constipation often have an evacuation of the bowels after the passage of a bougie and are likely to think a stricture exists. Some patients complain of a feeling as if the feces reached a certain level and then were obstructed and in these individuals the rectal bougie, after easily reaching a certain point, is forcibly arrested in its progress and it seems plausible that irritants in the feces may stimulate the circular fibers to spastic contraction.

The acuteness of the angle of the rectosigmoid junction changes from day to day and may be a factor. With the pneumatic sigmoidoscope when no adhesions exist this narrowing of the junction may be seen.

Temporary spasm of the rectum occurs sometimes on the introduction of the rectoscope but it usually subsides in a few minutes and by patiently waiting the examination may be proceeded with.

If the focus of irritation which causes the temporary spasm of the rectum be ulceration or infection within the coats of the bowel the spasmodic stricture may be the forerunner of a fibrous stricture, but when the cause originates outside of the rectum there is no probability of a fibrous stenosis resulting.

Krouse, after an exhaustive study of the literature and a careful study of these cases in his own work, concludes: 1. That spasmodic stricture of the rectum is not a disease, but only a symptom; 2. That it is not a common affection; 3. That it is easily detected by digital exploration; 4. That it often terminates in a fibrous annular stricture; 5. That it involves the lower Houston's valve; 6. That a rectal ulcer is a most important etiologic factor; 7. That curing the ulcer in its early stage lessens the chances of the development of a fibrous stenosis.

Inflammatory stricture may result from any abrasion or ulceration of the rectal mucosa sufficient in extent to involve the submucosa. In some cases the mucosa may have healed without evident change in the epithelium, but there exists a plastic deposit in the submucosa which continues to increase until it partially or completely surrounds the rectum. All strictures, regardless of their etiology, involve the submucosa.

Ulceration or injury of the mucosa alone will not produce stricture, hence this complication seldom follows catarrhal disease. Stricture is limited to those affections where there has been destruction of tissues and replacements by fibrous material.

The location of the stricture corresponds with the site of the primary lesion causing it and therefore may be found anywhere in the pelvic bowel although most of them are found between 6 and 9 cm. (2½ to 3½ inches) above the anus.

Tuttle[4] in 110 cases found 88 instances below this level.

Cicatricial stricture may result from indiscreet applications of caustics to the rectal mucosa such as nitrate of silver or chloride of zinc, also following unskillfully performed operations upon the rectum, and here incontinence is often an added calamity. Neglected fistulae are often accompanied by stenosis of the bowel just above the internal opening. Resection of the rectum where an end to end anastomosis is made is practically always followed by stricture. Why it should occur in the pelvic bowel and not in the portions covered by peritoneum is not known, but it does occur. Lynch[5] suggests it may be due to inadequate blood supply following operation; which theory is in harmony with the pathology.

Extra rectal pelvic operations, notably gynecologic procedures, may lead to rectal stenosis by affecting the nutrition of the rectum by stretching or thrombosis of some branch of the middle hemorrhoidal artery. In this way injuries incident to childbirth and also diseases of the uterine adnexa may be etiologic factors in the causation of rectal strictures. Perisigmoiditis and diverticulitis act similarly.

Peritonitis and pelvic cellulitis often produce stenosis of the rectum by bands which pass around the bowel or which bind the rectum to other pelvic structures and by contraction later will angulate the bowel. The circular muscle fibers when held by adhesions and inflammatory plastic material so that they cannot expand or contract will atrophy and become transferred into fibrous tissue.

Peritoneal abscesses originating in the prostate or in the broad ligament have frequently produced rectal stricture.

Gonorrheal proctitis is seen by all proctologists but it rapidly responds to appropriate treatment and most observers are of the opinion that deep ulcerations when present are due to secondary infection.

Syphilitic Stricture.—The exact status of syphilis as an etiologic factor in the causation of stricture is undetermined. Yeomans[6] says that 80 per cent. of his cases had unmistakable evidences of syphilis. Our experience does not bear out this statement because we have obtained many negative Wassermann reactions of both blood and spinal fluid in just these cases as well lacking a positive clinical history. However, we know that chancres and more frequently mucous patches are found within the rectum and involve the deeper coats of the bowel. Microscopic examinations of syphilitic stricture of the rectum show that the condition consists in a chronic inflammatory deposit characterized by nodular and gummatous formations around the blood vessels and also distinct endarteritis. The subject of syphilis within the rectum has been dealt with elsewhere. There are two independent factors operative in rectal strictures in syphilitic individuals, first, the gummatous deposits and the obliterating endarteritis which alter the nutritive conditions of the ulcer, and second the inflammatory hyperplasia affecting the submucous and muscular tunics.

The importance of recognizing this condition early is, as Earle[7] has said, that while this fibrous deposit is in its embryonic state it is soft and yielding, and by the use of frequent dilatation of the rectum and the use of antisyphilitic treatment, the subsequent contraction and formation of a stricture may be prevented.

Tubercular stricture of the rectum or sigmoid is infrequent and its existence is even denied by many. Primary tuberculosis is rare, being more often secondary to active or quiescent tuberculosis of the lungs. The usual course of tuberculosis of the rectum is toward rapid sloughing away of the tissues; there seemingly is not enough reaction in the tissues to resist the infection of the tubercle and septic organism.

There is, however, a form of localized tuberculosis found in the cecum and appendix and sometimes in the sigmoid or rectum in which there is only a little sloughing of the tissues but rather an excessive cell proliferation. Clinically it closely resembles malignant disease and may be mistaken for carcinoma, sarcoma or diverticulitis. If the peritoneal coat is involved adhesions unite the rectum, omentum and small intestines into a mass, sometimes so large as to be felt through the abdominal wall. Caseation of the mass is rare and the tubercles are hard to find. Beach (Cooke: Diseases of the Rectum and Anus, p. 323) reports a very interesting case of this sort.

Pathology.—Whatever the nature of the infection, the steps in the formation of inflammatory stricture seem to be much the same, namely:

1. Infection and inflammatory processes.
2. Ulceration of the mucosa or a localized thickening and rigidity of the rectal wall.

3. Round cell infiltration and production of connective tissue in the perirectal spaces and which tend to encircle the bowel.

4. Persistent contraction of this new formed fibrous tissue.

5. Compression and atrophy of the muscle.

In a word, the formation of inflammatory stricture depends on an extensive production of connective tissue which persistently contracts, and may reduce the caliber of the rectum until it be completely occluded.

If the primary ulcer is healed the mucosa at the spot appears dry and to have lost its normal shining appearance. Often ulceration is coexistent with the cicatrization and if so the rectum will be filled with muco-purulent, sometimes sanious discharge. Syphilitic ulcers show a tendency to heal in their lower limits while extending upward. The scarred surface appears bluish-white and is dense and hard to the touch. The healed portion closely resembles the scar of a burn on the skin. There is associated an infiltrating edema of the surrounding mucosa and sometimes proliferating granulations which further encroach on the lumen of the bowel and increase the obstruction.

Ulceration above the stricture may not be due to the primary etiology but rather to simple toxic necrosis from the irritation and pressure of the fecal materials retained here. This impaction and the straining incident to defecation through the narrowed channel cause dilatation and thinning of the rectum above the stricture. Hence great care must be exercised in the introduction of bougies or other instruments for diagnostic or therapeutic purposes.

In advanced cases, especially of the annular type, there may also be ulceration below the stricture. This lower ulcer is of the type that produces the stricture, whether it be inflammatory or specific. As the blood courses longitudinally up and down the rectum rather than around the gut, the vessels are, in a sense, terminal vessels, so that when, by inflammation and compression, the arterial blood supply is limited and the venous flow more seriously obstructed, necrosis or ulceration results. Also the natural tendency of existing ulcers to heal is weakened. In syphilitic stricture there will be found endarteritis and small gumma along the course of the arteries and veins.

The strictures occupy a fairly extensive length of the rectum and the gut is inflamed above and below the narrowest point whilst in the stenosis in connection with cancer the lesion is situated at various points and occupies a more or less extensive part of the rectum, but leaves untouchced the walls of the bowel above and below.

The stricture lies generally 2 to 6 cm. above the anus, occasionally 8 to 9 cm. from the anus, and only rarely in the middle part of the ampulla or in the upper part. In three of Hartman's cases the stricture extended along the whole length of the rectum and once even reached the lower part of the pelvic colon.

Usually we can observe a funnel-shaped infundibulum leading to a ring and an indurated cylinder of fibrous aspect narrowing the bowel so much that the forefinger can barely enter and even the little finger is tightly enclosed. In a small number of cases the lumen of the stricture is decreased so much that a urethral catheter only can be introduced.

On the surface of the stricture there is hardly ever any ulceration. In a section all the coats are blended into one sclero-edematous mass from a few millimeters to 1 or 2 cm. thick. The lesions seem to lie especially in the submucous layer; the mucous membrane is intimately blended with the subjacent fibrous tissue; the muscular layers are invaded but it is always quite possible to separate the external muscular fibers from the submucous hard mass, the internal fibers only being invaded by the sclerous processes.

Below the stricture the mucous membrane is inflamed, red and ulcerated. Sometimes ulcerations can be seen. Nearly always the membrane has lost its elasticity; it is unyielding, sometimes greyish, and presents here and there an epidermic aspect. The mucous membrane is generally thicker, strewn with granulations or even small lumps, sometimes papillomatous, sometimes molluscous; when such proliferations are very extensive the disease is called proliferative or stenosed proctitis. The anus presents ulcerations resembling fissures separating the small lump of a condylomatous clump.

Above the stricture is an extension of the inflammatory lesions of the mucous membrane, an infiltration of the rectal coats and sometimes numerous ulcerations reaching as far as the descending colon. These ulcerations, resulting from fecal accumulation, are in association with a progressive mortification of the tissue.

It is noticeable that around the rectum fistulae

can generally be seen, starting nearly always below the stricture and opening very often at the skin, sometimes at the vulva, seldom in the vagina.

Microscopical examination of operative specimens shows a great scarcity of ulceration of the mucous membrane at the level of the stricture. The mucous membrane has been transformed and the epithelial cylindrical coating with tubular glands is changed into a stratified pavement epithelium coated with irregular papilla. This substitution is also found in chronic proctitis without stricture and is explained by the fact that the cylindrical epithelium becomes necrotic, falls off and is replaced by an adjacent pavement epithelium, the epithelium of the columns of Morgagni for instance.

Beneath the epithelium, when it is not involved, and below a single layer of embryonic cells, when it is ulcerated, the actual tissue of the stricture can be found composed of hard fibrous layers separatel by embryonic diffused strips invading and separating the innermost layer of the muscular fibers.

These different lesions are alike in all kinds of strictures. In some cases in the middle of the fibrous layers, accumulations of round cells can be seen, especially around vascular lumens. At the same time on the internal coat of the artery are formed rounded vegetations; the lesions can be observed in the same way in the veins. Sometimes the vessel is completely obliterated, replaced by a nodule limited by a fibrous zone or a miliary gumma whose center sometimes shows a beginning necrosis.

The stricture as a whole is composed of fibrous tissue, resulting from a chronic inflammatory process and even in syphilitics the antisyphilitic remedies have no power either to cure or relieve the stricture.

Symptoms.—The course of rectal strictures is divided into three periods:

1. Latent.
2. Inflammatory or ulcerative.
3. Obstructive.

Latent or Formation Period.—Following the insult to the rectal mucosa an ulcer develops which finally heals and for a while our patient suffers no symptoms of rectal disease. During this period inflammatory development is going on but it is overlooked by the medical attendant and certain probable symptoms can usually be elicited by careful interrogation. The patient will admit that ever since the original injury or disease he has suffered more or less from heaviness, weight or aching in the rectal or sacral region or on either side of the sacral vertebra, just at its junction with the last lumbar vertebra. This is due to the impacted sigmoid pulling on the mesentery. Also pain shooting down the legs as a result of the accumulation of fecal mater in the rectum. Frequent micturition is often associated with this condition because of the pull exerted on the peritoneum as it passes from the bladder to the rectum. In women occur various reflex uterine disturbances. These symptoms, due to the proctitis, are those of any pelvic disturbance because the nervous mechanism of all the pelvic organs is closely interrelated and the possibility of stricture is to be thought of. By the time these symptoms are sufficient to attract attention of the patient and to cause him to seek advice from his physician, examination will disclose a considerable degree of constriction.

Ulcerative or Inflammatory Period.—The presumptive symptoms before mentioned gradually increase and a discharge of mucus, pus and blood is noted, together with rectal tenesmus. The abundance of this discharge varies. There are clinically two types of stricture; one with predominant suppuration, the other with predominating symptoms of stenosis. The discharge may be simple purulent, but more often is muco-purulent, glairy or membranous, with blood; in a few cases the discharge may be sanious, fetid and blackish. Some patients are obliged to wear a napkin in consequence of the abundant suppuration. The edge of the anus and the neighboring parts present an erythematous eruption. The discharge may occur only with the stools, but when extensive it passes independently of the feces and sometimes is entirely purulent. It is possible to mistake the suppuration for the discharge of an intra-anal abscess. Though the bleeding is not as extensive and usual as in cancer, yet it may be as important. One of Hartmann's patients compared it with menstruation.

Obstructive Period.—At this time there develops a gradually increasing and persistent constipation. At first cathartics are used but they soon lose their effect and an evacuation is had only after repeated enemas and is then accompanied with much straining after the fecal masses have been liquefied. In this condition it is quite

usual for these sufferers to go a week or more between defecations. The retained feces irritate the mucous membrane causing a catarrhal discharge and colicky pains and producing alternate diarrhea and constipation or the two conditions at the same time. There will be frequent and imperative discharge of mucus and liquid stools and at the same time a retention of large fecal masses. This condition may be easily confused with dysentery and the physician be tempted to administer opiates.

Sometimes the hard fecal masses can be palpated through the abdominal wall, although gaseous distention soon marks the findings. These hard fecal masses may produce complete occlusion of the bowel and even rupture. With all of this blocking there soon results intestinal indigestion, flatulence, coated tongue and all the evidences of auto-intoxication. Inguinal hernia may also be produced by the frequent and severe straining.

During the straining incident to defecation, blood is frequently voided with the mucus and pus, and sometimes a free hemorrhage may occur from the ulcerated surface.

Because of this persistent straining there may be an invagination of the sigmoid or upper portion of the rectum into the lower, resulting in traction on the mesentery indicated by pain referred to the lumbosacral joint. In syphilitic patients we frequently find anal syphiloma and condylomata existing at the same time as an obstructive stricture.

The form of the fecal mass has been considered as evidence of the existence of stricture. Grooved or tape-like fecal masses have been thought to demonstrate the aperture through a rectal stricture. The fecal mass is molded, of course, by the last opening through which it passes, and unless the stricture is at the anus or is prolapsed outside it cannot shape the extruded masses. More likely such forms are due to hemorrhoids or a spastic sphincter.

When the strictured portion involves the sphincters these muscles lose their elasticity, the anus becomes patulous and the patient suffers with incontinence as well as constipation. Gas and fluids escape uncontrolled but the solid material remains and blocks the canal until solvent enemas relieve.

Dilation and thinning of the gut above the stricture from the retained masses may cause perforation and peritonitis. Sometimes, however, operation may relieve the patient or the area is walled off by a local peritonitis and an abscess forms which terminates in a fecal fistula.

Diagnosis.—Whenever there is a history of progressive constipation and futile straining at stool, frequent fetid evacuations of mucus, blood or pus, a careful rectal examination is imperative.

It is not only necessary to determine the existence of stricture but also its seat, pathological character, extent and degree of constriction. If all of the pathologic change is low in the rectum within the reach of the finger, the information is easily obtained by digital and specular examination. The history of the case will give valuable information as to the existence and probable pathological character. Previous injury or operation, diffuse proctitis, pelvic cellulitis, prolonged labor, the history of perirectal or pelvi-rectal abscess, syphilis, fistula or rectal ulceration, may suggest a stricture especially if associated with increasing difficulty in bowel movements.

Examination.—The patient is placed in the left prone position, the knees well flexed and the hips raised upon a pillow.

Inspection is often suggestive. Fistulae may be seen or an anal discharge is noted. In tubercular or cancerous stricture the peri-anal fat may be absorbed but in inflammatory or syphilitic strictures it is not impaired.

When there is a discharge from the parts the character and odor should be carefully observed, the odor of cancer is muco-purulent and is quite distinctive, not fecal but a peculiar putresence due to the gangreneous flesh decomposing feces and other discharges and bears no resemblance to any other pathologic state.

In syphilitic stricture and ulceration the discharge is more profuse, of dark color and offensive odor. Tubercular stricture is accompanied with a creamy discharge similar to that of tubercular fistula, the odor of which is practically imperceptible.

Digital.—Digital examination is our chief source of information and the utmost care and gentleness must be exercised in making such an examination, so as to cause the patient as little pain as is only absolutely necessary and also to prevent exciting the sphincter to spasm, always bearing in mind the possibility of tearing the ulcerated structures and causing serious hemorrhage or even rupture of the bowel.

The rectal vault in the fibrous stricture tapers toward the stricture like a cone, the fundus may appear filled with granulations, but the scar tissue will be smooth and hard. The neighboring wall is always more or less stiffened. Cancer presents a nodular, hard, infiltrating stricture which bulges out into the bowel or is breaking down with an irregular crater-like ulcer surrounded with friable, exuberant granulations. The inflammatory stricture is comparatively smooth and hard, apparently confined to the bowel and free from adjoining organs. The vault of the rectum is abrupt in cancerous stricture while it is more conical in syphilitic obstruction. The simple inflammatory and the tubercular strictures are limited to a small length of bowel. Congenital and traumatic (including operative) strictures present few difficulties in diagnosis. They are usually annular and ulceration is limited or absent. In thin subjects the finger can explore five or six inches and even the recto-sigmoid junction by making counter pressure on the abdomen.

If the finger cannot pass the stricture easily it must not, under any circumstances, be forced, as nothing can be gained by so doing and any such effort causes pain and possible rupture of the bowel.

In making a digital examination the finger may find an aperture which is not the bowel lumen but which may lead to an ulcerating pocket over which there may be but a very thin wall. Added information may be obtained when examining females by the combined vaginal and rectal manipulation. In men the bimanual with one hand on the abdomen may grasp the mass between the examining hands and determine it height. During this manipulation one can determine the fixity of the mass to the sacrum or other pelvic viscera and aid in determining the expediency of operation. If it is attached to the sacrum, prostate or uterus its removal will be more difficult.

Proctoscopy.—Following the digital examination an instrumental exploration is attempted, through the proctoscope. Employing different lengths and diameters, we note the ulcerations or strictures beyond the reach of the finger and by diligence can usually determine the length of the stricture and the extent of the ulceration. Bougies and probes may be useful but always remember that even a soft and flexible bougie may do much damage. A bougie can be caught in a fold of the mucosa or impinge on the promontory of the sacrum and should only be used through the proctoscope.

Upon inspection, the mucous membrane is red, uneven with cicatrical spots, sometimes with vegetations and small ulcers. The stricture itself is stiff, hard and gray in color in striking contrast with the mucous membrane lower down. When the proctoscope can pass through the stricture it reveals a red mucous membrane obviously inflamed and some small, rounded and bleeding ulcers.

Differential Diagnosis.—A Wassermann reaction for syphilitic diagnosis and tuberculin for tuberculosis should be used in suspected cases. Finally, roentgenograms are made twenty-four hours after a bismuth meal and also after a barium clysma. These (a) outline the stricture, (b) demonstrate others at a higher level, a rare occurrence but one to be anticipated, and (c) show length of sigmoid available in case of operation.

STRICTURE	INTUSSUSCEPTION	CARCINOMA	SARCOMA
Symptoms persistent and continuing over a period of years.	Periods of relief from symptoms.	Symptoms all constant and rapidly progressing over a few weeks or months.	
No loss of weight.	Loss of weight.	Loss of weight.	Rapid loss of weight.
Constant discharge of blood, mucus and pus.	Periodic discharge of blood, mucus and pus, after which patient feels relieved.	Constant discharge of blood, mucus and pus.	Discharge rare.
Cachexia absent.	Cachexia absent.	Cachexia present late.	
Pain—may or may not be present.	Dragging pain in left iliac region or in lumbo sacral region relieved by enema.	Variable, no pain early, an uncomfortable sensation later referred to sacrum.	
Digitally a hard, smooth induration, adhesions limited.	Soft mass resembling uterine cervix, no adhesions.	Hard indurated mass, adhesions to sacrum and pelvic viscera.	
Onset gradual, many years.		Runs its course in 2 or 3 years.	Onset rapid.
Odor, fecal, varying with the extent of the ulceration.		Nauseating, gangrenous.	
Specular view, bluish white scar tissue.			

ASSOCIATED PATHOLOGY

Hemorrhoids are frequently associated with rectal stricture because of the impeded return blood current and sometimes the patient thinks the hemorrhoids are his whole complaint.

In many cases the stricture is complicated by a neighboring suppuration and sometimes the abscess or the resulting fistula is the first sign attracting the patient's attention. Fistula occurs in about one-third of the cases. When present

they are often multiple, intercommunicating, situated near the anus, in the ischio-rectal fossae, near the coccyx, the perineum or at the vulva and nearly always have their internal opening just below the stricture.

Hernia because of the constant straining incident to defecation is occasionally met.

Condylomata or syphiloma of the skin are sometimes seen with syphilitic stricture although they are not dependent upon the stenosis and are more often seen without the association.

Prognosis: The prognosis varies with the nature of the stricture and the treatment instituted. For cogenital and traumatic cases the prognosis is good. For inflammatory strictures the tuberculous excepted, good management will insure a life of comparative comfort in most cases, and sometimes an operative cure can be effected. If neglected, abscess, fistula development bring on exhaustion; peritonitis from perforation of the distended colon may occur or complete obstruction with stercoral vomiting and clammy skin precede coma and death.

Treatment: Prophylactic. Recognizing the fact that strictures are all due to inflammatory process, it is conceivable that proper treatment in the early stages may prevent their formation.

Following every operation upon or diseases of the rectum our patient should be kept under observation for many months that any possibility of stricture formation may be anticipated. In the case of simple infection a careful antiseptic treatment may often prevent the formation of a stricture. Most ulcers in their early stages respond to local and constitutional treatment, healing with a scar limited to the mucosa, or mucosa and submucosa, with no marked narrowing of the bowel lumen. Thus the greatest measure of prevention is to heal the ulcer in the prestricture stage.

Diet: Careful attention must be given that our patient have nourishing but non-irritating food, which also leaves little residue; therefore vegetables with cellulose are avoided. At the same time the diet must be generous and of sufficient variety that physical strength and weight be maintained. Slow eating with thorough mastication must be enjoined to prevent the accumulation of large masses in the fecal bolus which might obstruct the bowel above the stricture. Potatoes should be well baked or thoroughly mashed. Milk is acceptable to the stomach and upper intestine but in the colon it forms hard, leathery masses which are particularly dangerous in stricture. A mixed diet is composed of well chewed or chopped meat, soup, rice, hominy, ice cream, fruits, chocolate, fish, oysters and vegetables, salads with a bountiful supply of oil dressings. Patients with advanced stricture are debilitated and emaciated and the diet must be liberal. When selected diet fails to maintain a soft stool such as will be spontaneously voided it will be necessary to resort to laxatives. Active purgatives are to be avoided, preference being given to salines. Small doses of magnesium sulphate, 3 parts, with sodium bicarbonate, 1 part, in an abundance of water, usually acts well, and for occasional change castor oil, rhubarb or cascara sagrada may be substituted.

Diarrhea associated with stricture is due to impaction of feces above the stricture or to acute ulceration of the bowel or to the accumulation of mucus and pus which leaks down toward the anus and occasions a desire to go to stool. Cleansing enemas carefully given each day are of the greatest benefit, such as 2 per cent argyrol in water or the same strength of ichcythol or 25 per cent aqueous solution of krameria. It is sometimes well to add 4 ounces of glycerin or olive oil to the enema to assist softening of the fecal mass.

A 10 per cent solution of hydrogen peroxide will effectively clear out any scybala or dense fecal accumulations above the stricture. These accumulations are always a source of irritation to the supra-strictural ulcer and liable to result in impaction and complete obstruction.

Technic: The proper mode of administering the enema is vital. It is not necessary that the enema tube pass through the stricture. That portion of the bowel below the stricture may be washed with a few ounces of fluid previous to giving the enema and thus any accumulation of feces and gas is expelled. By so doing the desire to expel the enema is lessened. In order to lessen the abdominal pressure and allow the sigmoid to drop into the abdomen the patient is placed in the knee-chest position. This also lessens the acuteness of the splenic and hepatic flexures. With the patient in this position the enema reservoir need not be more than six inches above the level of the anus. Gravity also aids and the water trickles in slowly without causing spasm of the colon. If the enema is given with the bag elevated several feet above the hips as so often

occurs the sudden rush of fluid excites spasmodic contraction of the bowel with severe colicky pain and but a small amount of water enters the bowel. No. 12 soft rubber urethral catheter is anointed and inserted past the sphincter muscles; there is no need of passing it further. In the absence of a rubber catheter, a short rectal tip may be used but it is more likely to irritate the anus.

Dilatation: The radical treatment of stricture depends on its location, character and the amount of bowel involved. Strictures within the last one and one-half inches of the bowel can be relieved by gradual dilatation or some minor operation. Stenosis higher in the rectum of tubular type and reaching the peritoneal reflection can be benefited only by colostomy. If seen early however even these patients can often be carried along very comfortably by careful, repeated dilatations. This treatment is further employed after proctotomy to maintain patency. Forcible dilatation by metallic dilators or hydrostatic pressure is so likely to rupture the bowel that it should never be used. Dilating a stricture high in the rectum or in the sigmoid is a dangerous procedure even in skilled hands as there is no way of knowing just how much stretching the bowel will stand, and if it ruptures it does so in the long axis of the bowel and will open into the peritoneum.

The theory upon which gradual dilatation has succeeded in curing a certain number of strictures of the urethra is that it squeezes the blood out of the strictured area, and when the instrument is withdrawn there ensues a state of arterial hyperemia which results in absorption of the newly formed tissues. During the early stages of stricture the blood vessels remain intact, and are not materially diminished in number, the plastic deposit is soft and absorbable.

Weekly and semi-weekly examinations with the finger will note the tonus of the sphincters, the patency of the rectal canal and any vicious healing that may occur. Careful massaging with the finger followed by instrumental dilatation determines a hyperemia of the tissues. The increased local blood supply so badly needed absorbs the beginning sclerosis and restores resiliency to the anal and rectal canal. Following the massage a proctoscope is introduced and through it a tampon of lamb's wool saturated with 10 per cent, ichythol and glycerin in oil is applied to the scar tissue and allowed to remain until the following morning. Syphilitic patients require both internal medication and local treatment to relieve the cellular infiltration and endarteritis. Once a dense fibrous cicatricial tissue has formed the blood supply is crushed out and there is no hope of absorption of the stricture.

Gradual dilatation is the method used throughout the world of surgery, notwithstanding that it is seldom if ever curative, and entails periodical visits and treatment through life. It is carried on by the use of bougies and rectal dilators, and requires skill and good surgical judgment and is not without danger in the hands of the most skillful. There are various methods of introducing the bougie.

Technic of Passing a Bougie: If the stricture is within one and one-half inches from the anus it is usually an easy matter to find the orifice of the stricture with the left index finger and then guide the bougie along the finger and into the opening. The soft rubber Wale's bougie is hollow and when introduced until it meets obstruction water is injected through it in order to lift out of its way any fold of mucous membrane or fecal mass. If the stricture is above the reach of the examining finger or if its opening cannot be easily found, a proctoscope should be introduced and the dilator passed through it into the stricture. A small instrument should be tried first and then larger sizes until the largest one is found that can be introduced without causing pain. If pain is caused irritation is produced and the benefit of the treatment is lost. When this has been determined the speculum is withdrawn and the bougie is allowed to remain in place for fifteen minutes.

Before removing the last bougie for that day, a warm solution of boric acid should be introduced through the bougie, which brings away everything above the strictured area when the bougie is withdrawn. The patient should be kept quiet after the treatment for at least a half hour, and if there is any bleeding upon the withdrawal of the bougie the proctoscope should be immediately introduced to see the seriousness of such hemorrhage, for he should not be allowed to leave the office until all doubt is dispelled.

If this is carefully done so as not to irritate the patient's anus and rectum these treatments may be repeated three times per week for six weeks thereafter. Undue haste or roughness in manipulations will excite acute inflammation, thus further increasing the constriction and pain

and demand a temporary discontinuance of the treatments. A record should be kept of the sized instrument used at the last treatment and next time begin with the one size smaller than the largest size used at the previous treatment. Thus by passing three sounds at each sceance an increase is constantly maintained until a No. 10 can be retained for fifteen minutes. After each dilatation the bowel should be irrigated with normal saline solution. An old dense stricture requires prolonged continuous pressure to overcome its mechanical resistance, and the bougie may be left in place several hours, perhaps over night. But where the stricture is more yielding a few minutes stretching is enough and the instrument should be immediately withdrawn.

Electrolysis: In the traumatic or post operative strictures much benefit may be obtained by the use of bougie electrodes attached to the negative pole of the galvanic current. An insulated plated rectal electrode, large enough to fully engage the stricture, is attached to the negative pole of the galvanic current and placed in position. The positive pole may be placed under the buttock or leg of the patient. The current is gradually turned on being partly governed by the sensations of the patient, but if no objection is made from 5 to 20 milli-amperes are given continuously for fifteen to twenty minutes. Treatments may be given once every ten days or two weeks.

Considerable soreness follows the treatment, varying quite materially in different individuals and conditions. For this reason it is best to use the milder current strength for ten minutes' duration at the first treatment, gradually increasing it and lengthening the time of its application according to effect.

During the intervals between treatment, antiseptic washes and the other palliative measures should be continued, passing bougies or the electrode without the current, every few days. If these palliative measures are begun before the fibrous tissue has become fully cicatrized and while it is yet elastic much may be accomplished but if the stricture is hard, dense and unyielding, little can be expected short of operative measures.

Linear Incisions: (Internal Proctotomy). If the stricture is in the anal canal multiple radial incisions may be made through the stenosis and the canal widely opened. The patient, under general anesthetic, is placed in the extreme lithotomy position the hips well raised on pillows. The opening in the stricture is located with the index finger which is carried through the orifice if possible. Using the examining finger as a guide, a blunt pointed straight blade bistoury is passed through the opening to a point above the induration about the stricture. Turning the cutting edge of the knife toward the coccyx the cicatrix is cut through. Other incisions are made at different points around the stricture. Four to six such incisions are usually enough and the anal canal can be widely opened with a bivalve speculum. A final thorough digital exploration is made to ascertain that the induration is completely divided. A diligent search is also made for spurting blood vessels which if found should be ligated.

If any ragged edges are formed, or if fibrous segments appear between the points of incision, they may be removed immediately.

The hemorrhage following this operation is slight if the incision is not carried deeper than the fibrous tissue, and there is no reason why this should be done, as the contraction does not occur in the normal tissue. Should there be hemorrhage it will not be likely to prove serious unless the stricture should be located high in the rectum, and fortunately the majority of strictures occur in the lower portions.

A thick walled rubber tube, one-half or three-quarters of an inch thick and six inches long is wrapped with gauze then covered with rubber dam and annointed with vaseline. This tube is introduced until its distal end just appears at the anus and in this position maintains continuous distention of the operative field. A stout silk thread transfixing the lower end of the tube attaches it to the pad of folded gauze sponges applied to the perineum. The tube is removed in 48 hours and the wound irrigated with normal salt solution. During convalescence dilatation is practiced every day with a bivalve speculum or a conical dilator. After healing takes place bougies should be regularly passed. The dilators and bougies should always be well anointed with olive oil before using. The bowels should not be restrained but rather the stools should be kept soft.

Proctotomy: This operation is limited to strictures involving only the rectum or that do not extend upwards more than one inch above the peritoneal reflection. It is also a safe opera-

tion having a low mortality. Roentgenograms should always be taken during the study of the stricture and if the upper and lower limits cannot be outlined it may be necessary to open the abdomen to determine the amount of intestinal involvement. It is of course useless to do a sacral proctotomy if the sigmoid is invaded with a hyperplastic inflammation which will subsequently end in cicatrial contraction.

The patient is placed in the left semi-prone position with the head lowered. An incision is made along the right side of the sacrum from just below the posterior inferior spine of the ileum down almost to the anus, exposing the coccyx and the origin of the gluteus maximus muscle. The operator's left index finger is inserted between the rectum and the sacrum and the gluteus maximus is detached from its bony attachment. The coccyx is detached and turned back with the superficial flap. If more space is required a portion of the sacrum may also be removed but resection of the sacrum adds very little to the exposure of the operative field and contributes very much to the shock of the patient. The rectum has now been exposed into the hollow of the sacrum. The superior hemorrhoidal arter on the posterial wall of the rectum is identified and avoided in making the longitudinal incision through the stenosed area. All bleeding points are picked up and the possible existence of other strictures is thought of and the rectum is thoroughly explored. Longitudinal incisions may be made through various parts of the fibrous stricture thus facilitating full dilatation of the bowel. Having assured ourselves that the condition is relieved, a full sized bougie is passed well up into the sigmoid. After the bougie is removed a large drainage tube is introduced at the anus and carried well above the field of operation to assist in carrying out the gas and liquids without contaminating the wound.

The split edges of the rectal wound are now approximated over the drainage tube and sutured together through the muscular wall of the bowel, the sutures not penetrating the mucosa. Drainage is provided for the retro-rectal space.

There is usually considerable serosanguineous discharge from the wound for the first two days. On the second day the packing is removed, the cavity washed out with warm saline solution, and repacked using less gauze at each packing. After the bowels begin to move our patient should have a daily enema. If the evacuations are liquid or frequent they should be controlled by the administration of deodorized tincture of opium. As soon as the tube is removed dilatation is begun and must be continued. Primary union is not the rule, most patients suffer with a fecal fistula for a time but as the sphincters are not injured the possibility of incontinence is spared.

Excision: It is rarely advisable to resort to excision is non-malignant fibrous stricture and because of the tendency to recurrence of the stenosis at the site of operation this procedure has little or no advantage over proctotomy in re-establishing the functional activity of the rectum. It is applicable only in low seated annular strictures and should not be attempted in the tubular variety. We have described this technic in the consideration of cancer of the rectum and need not repeat here.

Colostomy: Is the operation of choice in tubular obliteration of the rectal canal or in stricture in the pelvic colon.

Colostomy enables us to explore the abdominal cavity and relieves obstruction and toxemia, and should be advised in all strictures that obliterate the rectal ampulla or sigmoid. Earlier surgeons reserved this operation until obstruction was imminent or until the pain was unbearable. Colostomy is now performed earlier because it affords physiological rest and drainage to the ulcerated surfaces and relieves infection. When this is done as a preliminary procedure to perineal surgery our results are much better than by any other method. After the stricture has been excised or dilated and the rectal condition apparently cured the fecal current can be restored.

In resume of this very perplexing subject it is our procedure with patients with a stricture in the lower rectum (1½ inches from anus) and anal canal to use gradual dilatation. If above this limit but still confined to the rectum we prefer proctotomy and if above the reach of the finger we advise colostomy deciding after the abdomen is opened whether excision and anastomosis is feasible or not. If the temporary colostomy is to be provided it should be made into the transverse colon that the surgeon may later have a freely movable sigmoid to bring down.

REFERENCES

1. Wallis, Fred C.: Surgery of the Rectum, p. 85.
2. Hartman, Henri: Lancet, Feb. 18, 1922, p. 307.
3. Krouse, Louis J.: Lancet Clinic, Oct. 28, 1916, p. 414.
4. Tuttle, James P.: Diseases of Anus, Rectum and Pelvic Colon, p. 463.

5. Lynch, Jerome E.: Diseases of Rectum and Colon, p. 227.
6. Yeomans, Frank C.: Jour. A. M. A., Sept. 13, 1919.
7. Earle, Samuel T.: Diseases of Anus, Rectum and Sigmoid, p. 318.

Fig. 1. Constriction of Rectum at site of Rectal Valves.

THE USE OF RADIUM IN GYNECOLOGY*

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Radium has come to be one of the important factors in the armamentarium of the gynecologist. Yet we may question whether, with the expansion of its use, has come a corresponding extension of clear conception of its indications and contra-indications. An agent as powerful as radium must necessarily possess a considerable potentiality for evil. Properly used it is one of the most valuable additions which recent years have brought to us. Yet some of the cases seen by gynecological surgeons, in which suggestions are made by attending physicians as to irradiation, would cause it to appear that clearly defined ideas of its proper use have not yet reached all of our profession. For convenience of consideration we may group the conditions under which it may be used as follows:

1. Non-malignant states causing bleeding.
   (a) Myopathic bleeding—uterine insufficiency.
   (b) Fibroids.
2. Carcinoma.
3. Inflammatory conditions.
4. Symptoms other than bleeding, caused by menstruation.

The most frequent occasion for irradiation is bleeding occurring at or near the menopause. This may sometimes be quite severe and become the cause of a marked secondary anemia. Drug thereapy is of little use. We formerly made use of curettage, and if this failed, resorted to subtotal hysterectomy. These cases today may almost without exception be managed by the use of radium. Most of these women are over forty. Under that age one should approach the application of radium with due consideration. Above that age, with the menopause not far off, or indeed in the act of accomplishing itself, as evidenced by the hemorrhage, one may irradiate without compunction. A dose of 1000 to 1200 mgm. hours is sufficient. The technic of application is now so well understood that discussion of it is needless. One practical point may be spoken of, which has been impressed by unpleasant experience upon the minds of a number of workers in this field, myself among the number. After the radium capsule has been placed in the body of the uterus, one should place the end of a piece of narrow uterine packing, or other bit of gauze, up to and just through the internal os, in order that the capsule may not slip down upon it. This has been known to cause enough reaction at that point to cause a later stenosis with development of a pyometra or hematometra.

We may expect relief of bleeding in these cases in a little over 90 per cent. In about 150 applications of radium for bleeding in either simple insufficiency or in small fibroids we had results a trifle better than that, about 93 per cent. So large a proportion of these case are relieved by irradiation that we may regard this form of therapy as of more value than any other.

The treatment of fibroids by irradiation gives good results within a limited field. Before choosing irradiation one should consider carefully whether any contra-indication exists. In uterine bleeding from insufficiency or fibroid one should keep clearly in mind that pelvic infection renders the use of radium in the uterus dangerous. Pelvic infection in the acute stage may cause uterine bleeding. One should be quite certain that the bleeding to be treated is not of this type. The application of radium in a case of this sort would be dangerous. Old and apparently quiescent infections may be rendered acute. A history of pelvic infection should cause irradiation to be rejected. Again in women under forty radium should be chosen only after careful consideration. Permanently to stop bleeding means enough irradiation to cause a cessation of ovarian activity. Many times an operation is a lesser evil than this. Particularly in fibroids, it is better to remove the cause of the bleeding by hysterectomy or possibly myomectomy, leaving the ovaries, than to produce a menopause years before it is normally to be expected.

It is better for the women who are to be irradiated to be over forty, the further over the better. Again, when considering irradiation for fibroids, after carefully excluding the possibility of infection, and after refraining from suggesting its use in women who are young enough to make some other form of treatment preferable,

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we have found it advisable to restrict its use to the smaller growths. Our usual practical rule is to radiate only in tumors not over the size of a three months' pregnancy. Even smaller than this is better. Again tumors located on the outer part of the uterine wall, are not well fitted for irradiation. These generally do not bleed and therefore do not need it. Having considered all these limitations it is clear that the fibroids suitable for irradiation are found in a rather restricted field. Within this field radium is of great use. Restriction as to size may be disregarded when the woman is a poor surgical risk.

The dosage for fibroids should be a little larger than for simple bleeding. Twelve to fifteen hundred milligram hours as a rule suffice. In applying radium in cases of fibroid it is well to ascertain prior to placing the capsule in the uterus whether any tortuosity of the canal may possibly interfere with its removal. Should this appear to be likely it is better to make use of some other treatment.

The relief from bleeding after irradiation is not always immediate. Many women will have a period after treatment and may flow rather freely. This is especially apt to be so if a fibroid is present. In about one quarter of the cases a second period may appear. This second period is usually scanty, but may, in exceptional cases be rather free. After this, as a rule, no further bleeding appears. We prefer, when the length of the uterine canal makes it feasible, and particularly when irradiating for bleeding caused by fibroids, to use 100 mgms. of radium in two capsules placed tandem in the uterine canal. This subjects the entire body of the uterus more evenly to the action of the rays.

A leukorrheal discharge may be present for a time, usually a few weeks, after irradiation. This disappears or lessens of itself, and sometimes a previously troublesome discharge may be made less so after the full effect of the radium has been exerted.

A third sequela may be a watery discharge. This lasts from four to six weeks, disappears of itself, and needs no treatment. Explanation to the patient as to these results of treatment before she leaves the hospital will save explanation later.

Irradiation in this group of cases is quite safe if scrupulous attention is paid to the possible presence of latent infection, and if the usual precautions as to asepsis which should accompany any surgical procedure are observed. In over 150 such cases we have had no death and only one severe febrile reaction. This was early in our work in this field, before we had come to appreciate fully the importance of excluding any case in which infection might be present. By all means the most important part of radium therapy is the selection of cases. This means careful gynecological diagnosis. The application of the radium is so simple that a man of small operative experience may easily do it. Accurate recognition of pelvic pathology is sometimes difficult even for the expert examiner. We feel, therefore, that irradiation for pelvic disease should be done by the gynecological surgeon. Radium therapy is not a competitor of surgery in this field, but is itself a part of pelvic surgery. The woman who requires relief from bleeding is most safely cared for by one who can intelligently differentiate between conditions which will respond well to irradiation and those which should be operated upon. Radium unintelligently used is not without danger. One should approach these cases with an open mind, without prejudice for either irradiation or surgery. This is difficult alike for the specialist in radiology or for the surgeon whose experience is wholly operative.

In the treatment of cancer we must sharply distinguish between cancer of the corpus and cancer of the cervix. The former should not be irradiated. Metastasis occurs comparatively late in cancer of the body of the uterus. Operative results are so good that surgical treatment should be the rule. Our results in these cases have been very satisfactory, and this experience is reported from practically every active clinic.

Cancer of the cervix is an entirely different matter. Opinions still vary as to the relative merits of irradiation and operation, but radium has of late had the more adherents. Some very far advanced cases are better off with neither.

In our own service we choose operation in carcinoma of the cervix only in those cases in which the growth is clearly confined to the cervix, the uterus freely movable, and a margin of healthy cervical mucosa between the cancer and the vaginal wall. These are quite the exception and we have seen only three in the past three years. One of these was irradiated and is now in an advanced stage of the disease and will probably live

but a few months more. The other two were operated upon, and so far as pathological examination could determine, the carcinoma was confined to the excised uterus. Operation has been too recent to be certain as to the final outcome.

The great majority of cases which the surgeon sees are beyond the limits named above. In these radium is of great value. It enables us to prolong life, stop bleeding, do away with the foul discharge, and give the woman for a time decidedly greater comfort. A few very simple practical points are of value. Radium is best used in the form of a tube in the cervical canal, together with needles placed at the periphery of the growth in a circle. This applies to the larger number of men who are able to use radium in smaller amount. In those fortunate institutions in which a gram is available a different technic is used. Less than 100 mgms., however, is of very little use in cancer. Too small an amount may do harm. The mode of application just alluded to permits of cross firing the growth and the needles in the outlying part help to extend the area over which the effect of the radium is exerted. If, in order to place a tube in the cervix, the canal must be dilated, it is better to burn it with a cautery to the necessary diameter rather than to use dilators. The latter may cause cracks in the growth and open lymph spaces, and thus tend to spread the cancer. If any part of the cancer mass must be removed, it should be done with a cautery or by diathermy. Removal of cancer tissue with a curette is not wise.

The first dose is the all-important one. We are accustomed to give from 3500 to 4000 milligram hours and not to repeat unless evidence of later extension is seen. We have for some time had our patients take one series of deep x-ray exposures about six weeks after the use of radium. I am still to be convinced of the actual value of this but we expect to continue it for the present.

The immediate results are often exceedingly good. Great masses of cancer filling the vaginal vault disappear, bleeding ceases, the uterus sometimes becomes more moveable, and the woman is given at least a period of comfort and some lengthening of life. While the number of five-year cures is not flattering, there appear to be about as many as after radical operation. The radium has the advantage of avoiding the primary operative mortality, which is considerable, in some good clinics where all operations are done by skillful operators averaging over ten per cent. In less experienced hands the mortality of radical surgical interference for cervical cancer would be far higher. He who essays a difficult surgical procedure should remember, when asked the risk, that the mortality rate of some world famous clinic does not supply the answer. The risk his patient takes is evidenced by his own personal results. Operation should not be chosen in cervical cancer except in exceptional instances. We prefer to radiate almost all of our cases, operating on those only in which painstaking investigation shows that the cancer is confined to the uterus, and we are certain that the uterus may be removed without going into any area which is invaded by cancer. This reduces our operable cases to a very small number.

In view of what has been said concerning the importance of excluding all infected cases from radium therapy the inclusion of a group of inflammations may seem strange. The only product of infection which may be treated at all by irradiation is chronic endovervicitis. The relief of persistent leukorrheal discharges has been a gynecological problem for a long time. The use of radium in the cervical canal has been suggested by Curtis, for the purpose of destroying wholly or in part the infected glands of the cervical mucosa. Our own experience with this method of treatment has been small and not wholly satisfactory. In younger women one must always keep in mind the danger of affecting the ovaries and also of producing a rigidity of the cervix by the production of scar tissue which results from irradiation. These facts, together with the conclusion that the method is probably not as effective as we had hoped it might be, will probably prevent this mode of treatment from attaining a wide use. Dosage should be quite small, 250-300 mgm. hours, the radium thinly screened and fastened in the cervix by a suture or a Michel clip. It should not be used in any case in which an infection of the tubes has ever been present.

There are occasionally and quite exceptionally cases in which irradiation may be used for the relief of symptoms connected with the period, and which are sufficiently severe to demand relief, even at the expense of producing a permanent amenorrhea. In our own experience this has occurred but once. This was in a woman of 38, who had had a sufficiently severe toxemia of

early pregnancy to necessitate therapeutic abortion. Her only other pregnancy had ended in eclampsia at eight months. She had headaches every month of unusual severity and duration, being disabled ten days out of each month. Her physician, one of Chicago's best known internists, had labored faithfully to control the headache without success. All possible investigations for foci of infection had been made. When she was referred to me he raised the question whether, as the pain was distinctly periodic, it would not be justifiable to stop menstruation. This was done by irradiation with almost complete relief from the headaches. The admission of an occasional case of this sort to radium therapy does not justify its frequent and careless use upon women before the menopause for less than completely sufficient reasons.

FRACTURE OF THE NECK OF THE HUMERUS.*

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This paper deals only with that type of fracture in which the break is near the head of the bone and the proximal fragment is more or less comminuted. This injury occurs only in direct violence either by being struck a forcible blow with some object driven by external force or by the body falling heavily against some other object and receiving the force of the impact at the site of fracture. Of the six cases treated one fell from the side of a freight car and struck on the shoulder against the edge of a steel rail, one fell from a windowsill and struck the back of a chair, two fell from bicycles against the corner of the crubstone, one was struck by a pitchfork handle which had been snatched away from him by a moving belt and whirled around the belt-wheel and one was picked up by a belt, whirled around a belt-wheel and thrown against a cement abutment.

These cases all presented the picture more of a dislocation than of fracture, except the end of the displaced shaft seemed to be lacking in the usual ball-like feel of the head of the humerus. On four of these cases attempt at reduction for dislocation was made previous to the time I saw them. My first step in diagnosis, as is my usual method in all cases where bone injury may be possible, was an x-ray picture. This shows at once the condition to be dealt with and spares the patient considerable suffering as well as avoiding the possibility of doing damage by the sharp points on the end of the displaced fragment. Open operation was done in all cases. In none of them was there much comminution of the end of the lower fragment, the line of fracture being generally transverse with one or more sharp protruding angles. The upper fragment was badly splintered as far as bony structure was concerned, and in one case the cartilaginous joint surface was fractured across part of its face.

It had formerly been my custom in this class of injury to remove the proximal fragment in toto, smooth off the end of the lower fragment and shove it up into the glenoid cavity, and employ one or another kind of fixation for the arm and shoulder. It will always be found that the upper fragment is firmly held by the capsular ligament, even though this ligament be badly lacerated. The best approach is through the deltoid muscle, separating the fibres from below upward with a blunt dissector in order to avoid injury to the circumflex artery, vein and nerve. The work on the bone consists in first turning out the end of the lower fragment, removing all sharp points and rounding off the edges. This is then depressed and all loose fragments, some of which are usually found imbedded in the cancellous tissue of the head, are removed. The cancellous structure is then removed, scraping out everything from within the head down to solid bone. All sharp points are removed and the edges rounded off. This leaves a smooth cup-like structure held by the capsular ligament. The smooth end of the lower fragment is now raised and inserted into this cup. If possible secure the fragments together with suture between the insertion of the capsular ligament and periosteum, or tendon or ligament. The wound is closed without drainage.

Any form of fixation may be used, simply being sure that proper position, especially that of rotation, is maintained. This operation gives very close to one hundred per cent. functional as well as anatomical results.

DISCUSSION

Dr. S. C. Woldenburg, Chicago: I want to bring out a few points for I am quite in doubt as to the statements Dr. Finley has made. First, if I under-

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stand correctly, he is dealing with a fracture of the surgical neck of the humerus or close to the joint. He states that all these fractures are mostly comminuted. I understand by a comminuted fracture that the proximal fragment is split. If I got his interpretation correctly he corrected the fracture by making a cavity and shifting the lower fragment into the cavity. I do not believe that I quite understand that point, as I do not see how it is possible for one to gouge out a cavity in a comminuted fracture.

Another point I want to emphasize. The Doctor says there is very little shortening by pushing the lower fragment into that cavity and that there is 100 per cent function. I do not see how this is possible. I realize that I am an embryo Orthopedic Surgeon, but do believe that I have had some experience with fractures by being connected with the Veteran's Bureau, where I had over 150 fracture cases on the service over long periods of time, and cannot see how a person can make it a general rule to operate on all these fractures. I would rather be inclined to be less radical in this type of fracture, more so than in any other type, and therefore would try a closed reduction first before I did anything else. In my own experience, which is over a half-dozen of these cases, I got fairly good results with the aeroplane splint or the modified Thomas splint.

Another point I want to bring out. The Doctor says it should be dressed in internal rotation with extreme abduction. If you will put up a fracture in flexion and abduction and external rotation when possible, you are going to get not 100 per cent, but approximately 90 per cent, and if you do not like to put the patient up in that way, traction, abduction and external rotation, according to the method of Joseph Blake of New York, will give very satisfactory results. If you can keep the patient in bed for two or three weeks you will get 100 per cent results, with the method stated above.

I do not see how we can accept the idea of doing an open operation on a fracture of this kind, when a less radical procedure will give a much better result.

Dr. B. E. Le Master, Bushnell: I would like to ask the Doctor if in any of these cases the head of the bone was dislocated. If the head were dislocated it may be necessary to put it back by open operation.

Dr. J. R. Harger, Chicago: Why operate if results can be obtained without operation? I have found the non-operative method very satisfactory in most of these cases.

Dr. C. Finley, Galesburg (closing the discussion): In answer to Dr. Woldenburg's remarks, I am not talking about the surgical neck or the anatomical neck; I am talking about fracture close to the head where there is a comminution which in some cases extends across the cartilaginous surface. The fracture is usually transverse but there may be a fragment or two sticking up. That is the type of fracture I am talking about, not a dislocation. The Doctor speaks about not being able to excavate the upper fragment. You will get an excavation at least one inch deep in this type of fracture. I have not had a case in which there was not a cavity at least one inch deep.

Doctor Harger wanted to know why we did not treat this fracture with a closed operation instead of an open. You have a comminution extending into the soft tissues and you are going to have a callus thrown out. You are going to have a mass of bone accumulate that will not give much function. You will not get results except by the open method. You excavate the head of this bone; you have a cavity that is practically an inch deep. The head is up in the glenoid cavity. You put your blunt instrument down against the shaft of the bone and go up. You are not going above the insertion of the capsular ligament. If the arm is properly immobilized you will have 100 per cent function. I am not condemning the aeroplane splint, but I have obtained good results by my method.

SCROTAL CALCULI.

L. Brannon, M. D.,
JOLIET, ILL.

Apparently vesicle stones in the scrotum are rarely found. There are no cases reported in the literature which I have or have access to. The consulting bureau of the W. F. Prior Company, Inc., have furnished me with the reports of two cases. The first reported by J. T. Tazvitski: (a case of Uric Stones in the Cellular Tissue of the Scrotum.) Lietopis Russkoi Khirurgii, St. Petersburg, 111, 319. Year, 1898. The second case—J. L. White, Case of Urethral Stricture with Calculus in the Scrotum. Medical Record and Annals, 1924, XVIII, 136.

The author wishes to report the case of Mr. J. McG., age 55, married 36 years, Railroad engineer. Always in the best of health. Never had urethritis or any disease of the genital organs. Since a child he knew there was a hard lump at about the posterior end of the anterior urethra. This lump had gradually increased until it reached the size of a hen's egg. He never consulted a physician as it never gave him any inconvenience, pain or difficulty in urinating. A short time before the present trouble started he wore a pair of overalls that were tight and caused considerable pressure on the scrotum. He thought this brought on the present trouble for he soon noticed a constant desire to urinate which was painful, burning and difficult. The difficulty in urinating increased, the stream became smaller until the urine came in drops. On the night of April 17, he was unable to pass any urine and catherization had to be restored to. There was enough pus on the meatus to

enable me to get a smear, which contained many staphylococci and strephlococci but no gonococci. Ice was kept on the scrotum and the bladder emptied twice daily with a soft No. 2F. rubber catheter until April 23 when he was removed to the St. Joseph Hospital for the purpose of having the scrotal abscess opened and drained. April 24, with gas anesthesia, an incision was made in the skin of the scrotum a little to the left of the raphe and just below the point where the skin of the scrotum is attached to the penis. An ounce or more of foul smelling pus was removed and on inserting my finger into the wound I found several stones which were hurriedly removed by crushing with forceps and curet. The wound was packed with iodoform gauze. There was no chance to see how large the opening into the posterior urethra was, for the patient was not doing well and the anesthetist discontinued the anesthetic. The operation was completed in seven minutes. The stones weighed 57.4 grams. The testicles were normal, a part of the urine came through the wound though he voided twenty-two ounces during the first 24 hours. The morning following the operation his temperature, pulse, and general condition were normal and remained so until the afternoon of April 28 when his temperature rose to 104 and pulse 120. This was doubtless due to the insertion of a urethral sound, a few hours before. A sound had been inserted every third day and the number increased to 30 F. April 29, temperature, pulse and general condition were normal and have continued so. He sat up April 30. He left the hospital May 6 and the wound in the scrotum has been closed since May 20. May 25th cystoscopic examination showed severe cystitis. Ureters were not catherized for fear of transmitting the infection. June 1, urinalysis—Wilson Laboratory—cystitis, no pyelitis.

The author believes that the cause was due to a congenital defect in the urethra or an ulcer or tear in the valve of the urethra. The chief reasons for reporting this case are its rarity, long duration of stones and urine in the scrotal tissues without causing disturbance and lack of mention in text-books.

A professor at Columbia says that long legs are a sign of superior intelligence. Anyhow, the breed has special facilities for keeping out of trouble.—*Detroit Free Press.*

TOPICS IN BRIEF

(Literary Digest)

Does Congress contain a United States of America bloc?

The Senate, by placing an impost on radios, has put a tax on air. Now let the rest of us get together and demand that it include hot air.—*Philadelphia North American.*

The American ideal in politics is to do nothing yourself, and investigate everything the other fellow does —*Columbia Record.*

They are putting the pain in campaign now.—*Scripps-Paine Service.*

The most influential post in the dry enforcement squad seems to be the post mortem.—*Associated Editors (Chicago).*

Society Proceedings

COOK COUNTY

Chicago Medical Society

Regular Meeting, December 9, 1925

1. Dry Clinic. Discussion of a case of Ruptured Uterus with Numerous Complications—Emil Ries.

2. The Diagnosis and Treatment of Pelvic Infections—Henry Schmitz.

Discussion—Arthur H. Curtis and Carey Culbertson.

3. Hysterectomy or Radium in the Treatment of Uterine Fibromyomata—William C. Danforth.

Discussion—Channing W. Barrett and George de Tarnowsky.

Joint Meeting of the Chicago Medical Society and the Chicago Roentgen Society, Dec. 16, 1925

Exhibition of a case of Hemochromatosis in a Woman—James H. Hutton.

1. The Radiographic Examination of the Mastoids —Amedee Granger, New Orleans, La.

Discussion—Norval Pierce.

2. The Value of the Dental Radiograph in Determining Periapical Infection—Russell L. Hayden, Kansas City, Mo.

Discussion—C. F. B. Stowell, D. D. S.

3. The Roentgen Ray as a Remedy in Fibroid and Other Benign Gynecological Diseases—Mary E. Hanks,

Discussion—Sarah M. Hobson and Benj. H. Orndoff.

GREENE COUNTY

The regular annual meeting of the Greene County Medical Society was held at Roodhouse on Friday,

Dec. 11, 1925. The meeting was held in the parlor of the Christian Church, the meeting was called to order at 11:30 a. m., by the president, Dr. Wm. H. Garrison. Eleven members present and one visitor, Dr. J. W. Armstrong, pastor Roodhouse M. E. Church, had dinner at Hotel Roodhouse and a social hour enjoyed for which the society is under obligations to the physicians of Roodhouse. The meeting again convened in the parlor of the Christian Church at 1:30 p. m. Dr. A. R. Jarman read a carefully prepared paper on "Ovarian Hypo-function."

Dr. A. K. Baldwin read an instructive and interesting paper on "Corpus Luter." These papers were discussed freely by all members present. Much information and many interesting experiences were brought out by this discussion. After the discussion closed our visitor, Dr. J. W. Armstrong, pastor of the M. E. Church of Roodhouse, was invited to speak. Dr. Armstrong referred to the wonderful progress made by the medical profession in recent years, and to the great benefit accruing to society therefrom. The doctor is a close and accurate observer and gave us much encouragement. The society next proceeded to the election of officers for the year 1926, as follows: Dr. O. L. Edwards, president; Dr. F. H. Russell, vice president; Dr. W. H. Garrison, secretary-treasurer; Dr. Howard Burns, censor.

A rising vote of thanks was tendered our retiring secretary, Dr. W. F. Knox, for his long, faithful and efficient service as secretary of the society. Moved by Dr. N. J. Bucklin and seconded by Dr. H. W. Smith that the censors report in the matter of Dr. S. F. March be accepted. The motion carried. The censors selected Carrollton for our March meeting. On motion, meeting adjourned.

W. F. Knox, M. D., Secretary.

WILL-GRUNDY COUNTIES

Since the resumption of our meetings (weekly) in October they have been very well attended.

Our speakers include Dr. W. E. Walsh of Morris; Dr. Grant Houston of Joliet; Dr. P. S. Winner of Chicago; Dr. J. J. Moore of Chicago and Dr. W. J. Harrison of Joliet.

Our annual election was held Wednesday, Dec. 9, 1925, and the following officers selected for the year 1926: President, J. W. Krohn; vice president, F. C. Bowker of Morris; treasurer, Roy B. Leach of Joliet; secretary, G. H. Woodruff of Joliet; delegate, H. W. Woodruff of Joliet; alternate, A. J. Lennon of Joliet; board of censors, Mat. Bloomfield of Joliet, and H. M. Ferguson of Morris; medico-legal advisor, W. R. Fletcher of Joliet.

At the same meeting Dr. Fletcher, our medico-legal advisor, reported that an effort was being made to remove the war tax from the yearly Harrison Narcotic Tax.

A motion was passed that the secretary communicate with our two United States senators, our local congressman and the two congressmen at large, indicating our desire to have the War Tax removed from the yearly Harrison Narcotic Tax; this bringing it down to the $1.00 pre-war figure.

Respectfully,

G. H. Woodruff, Secretary.

Marriages

Harry S. Arkin, Chicago, to Miss Irene H. Kraus of New York, November 18.

Victor Mackay Daly to Mrs. Anna Raymond; both of Pontiac, Ill., at St. Paul, September 16.

Personals

Dr. Henry A. Merkel, Wilmington, has been appointed physician to the Soldiers' Widows' Home, to succeed Dr. Charles J. Carlin.

Dr. Thomas G. McLin, formerly of Jacksonville, has been transferred to the U. S. Veterans' Hospital, Fort MacKenzie, Sheridan, Wyo., where he will be clinical director.

Prof. L. Koeppe of the University of Halle addressed the Chicago Opthalmological Society, December 22, Hotel Sherman, on "The Importance of Einstein's Theory of Relativity and Gravitation for the Physiologic Color Perception of the Living Eve."

Dr. Alfred Lewy addressed the Chicago Laryngological and Otological Society, December 7, on "Specimens of Ragweed of the Chicago Area," and Dr. Austin A. Hayden on "Cervical Emphysema Following Tonsillectomy."

Dr. William E. Gallie, Toronto, addressed the Orthopedic Club, December 22, at the University Club on "Transplantation of Fibrous Tissue in Repair of Anatomic Defects." Dr. Joseph C. Bloodgood, Baltimore, will address the club, January 8, on "A Brief Review of the Salient Points in the Diagnosis and Treatment of Benign and Malignant Lesions of Bone from an Industrial Standpoint."

Dr. Frederick H. Falls, Iowa City, has accepted the appointment of professor and head of the department of obstetrics and gynecology at the University of Illinois College of Medicine, Chicago. Dr. Falls, who formerly was an instructor in that department at Illinois, has since 1921 been head of the department of obstetrics and gynecology at the State University of Iowa College of Medicine, Iowa City; he is a graduate of the University of Chicago and Rush

Medical College, and has a master's degree from the University of Illinois.

Dr. Isaac I. Abt announces his appointment as attending physician in diseases of children at St. Luke's Hospital.

News Notes

—The American Hospital of Chicago, at Irving Park Boulevard and Broadway, has broken ground for the erection of a four-story, fireproof addition.

—The Chicago Surgical Society met, December 4, at the Cook County Hospital following a dinner and symposium at the University Club on "Carcinoma of the Large Bowel," participated in by Drs. Vernon C. David, Carl B. Davis and Arthur Dean Bevan.

—There was a dinner at the Hamilton Club, December 16, in honor of Dr. Amedee Granger, New Orleans, and Dr. Russell L. Hayden, Kansas City, Mo., who addressed the Chicago Medical Society that evening on "Radiographic Examination of the Mastoids" and "The Value of the Dental Radiograph in Determining Periapical Infection," respectively.

—At the tenth annual meeting of the board of governors of the Institute of Medicine of Chicago, December 9, Dr. Anton J. Carlson, professor and chairman of the department of physiology, University of Chicago, was elected president of the Institute for 1926; Dr. Robert B. Preble, vice-president; Dr. George H. Coleman, secretary; Dr. John Favill, treasurer, and Dr. Ludvig Hektoen, chairman of the board.

—The medical history club, recently organized at the University of Illinois College of Medicine, was addressed by Mr. Christian Bay of the John Crerar Library, November 4, on "Observations of a Medical Librarian Abroad"; by Arthur H. Daniels, Ph.D., dean of the Graduate School, University of Illinois, December 2, on "The Philosophy of Spinoza," and by Dr. Morris Fishbein, December 16, on "Eclecticism." The next lecture will be by Dr. Basil C. H. Harvey of the University of Chicago, on "Vesalius."

—At a luncheon, December 5, at the University of Chicago, given by President Max Mason, Dr. William H. Mayo, Rochester, Minn., gave an address on "Chemistry in Medicine"; Arthur D. Little, D. Chem., Cambridge, formerly president of the American Chemical Society, on "Chemistry in Industry," and Julius Stieglitz, Ph.D., head of the department of chemistry, University of Chicago, on "Chemistry in the University." Following luncheon, the guests were taken through Kent Chemical Laboratory, where each man engaged in research demonstrated his particular problem.

—The medical board of St. Anthony's Hospital, Rock Island, has passed a resolution, according to the Rock Island *Times,* opposing the administration of toxin-antitoxin free of charge to school children under the direction of school physicians; as a result, it is said, the plans of the school superintendent to have pupils immunized against diphtheria have been changed, and family physicians will do the work when requested by parents. The toxin-antitoxin which had been ordered from the state health department will be turned over for this purpose without charge.

—At the third annual meeting of the Chicago Regional Planning Association, December 2-3, Hotel Sherman, the Wednesday afternoon program was "Public Health," at which Senior Surgeon Claude C. Pierce, U. S. Public Health Service, presided and gave an address on "Coordinated Health Work in the Chicago Region." Among other speakers were Dr. Isaac D. Rawlings, state health officer; Dr. Cornelius A. Harper, state health officer of Wisconsin; Dr. William F. King, state health officer of Indiana; Dr. Herman N. Bundesen, city commissioner of health; Dr. William A. Evans, and Dr. Milton M. Portis.

—The board of regents of the University of Wisconsin announced, December 2, the resignation of Dr. Carl Hedblom, who has been professor of survery in that institution since June 26, 1924. Dr. Hedblom has been appointed professor and head of the department of surgery at the University of Illinois College of Medicine, Chicago, and will take up his duties, February 1, 1926. Dr. Hedblom is a graduate of Colorado College (B. A.), Harvard University (M. D.), and the University of Minnesota (Ph.D.); he was an intern in the Massachusetts General Hospital, Boston; professor of surgery in the Harvard Medical Schools of China from 1913 to 1916; appointed head of the section on general thoracic surgery at the Mayo Foundation in 1919 and was assistant professor of surgery in the University of Minnesota.

—Sponsored by the Seventh District Illinois Federation of Women's Clubs and under the auspices of the Northwest Branch of the Chicago Medical Society and the Northwest Branch of the Chicago Dental Society, an All-Community Health Pageant was held, December 3-5, at the Logan Square Masonic Temple. Among the features of the pageant were free medical and dental examinations for children and adults, and a prize was given for the healthiest man and woman past 70 who lived on the northwest side. Among the speakers were Dr. Thomas Parran, Jr., U. S. Public Health Service, whose subject was "Co-operation"; Dr. Abraham Myerson, professor of neurology and neuropathology, Tufts College Medical School, Boston; Charles N. Johnson, D.D.S., formerly president of the American Dental Association; Dr. Claude C. Pierce, U. S. Public Health Service; Dr. Borden S. Veeder, St. Louis, and Dr. Morris Fishbein. The physicians and dentists were guests of the business men of the Northwest side at a dinner, Friday evening.

—The new Rawson Laboratories connected with Rush Medical College were dedicated with appropriate ceremonies, December 18. The building is five stories high, of steel construction, joined on one side with the Presbyterian Hospital and on the other with the Senn Memorial building. On the first floor are administrative offices and library built for more than 25,000 volumes; the second, third and fourth floors are for classrooms, examining rooms, reception rooms and special laboratories. Surgery occupies the entire fourth floor, and the Norman Bridge pathologic laboratories the fifth floor. The Central Free Dispensary, which last year treated more than 100,000 persons, will be in this building and the Senn Memorial building. There is a children's play room for mothers who, in seeking treatment, bring their children, and a play director in charge. There are small treatment rooms throughout the building, two operating rooms on the fourth floor for minor operations, and various small laboratories for medical research for advanced students. The laboratories have the latest improvements. The building generally is of the most modern type.

—Officers selected at Annual meeting of the Kankakee County Society were N. T. Stevens, Chebanse, president; S. W. Lane, Kankakee, vice-president; H. E. Delavergne, secretary and treasurer, Kankakee; censor, three years, J. A. Guerton, Kankakee, censor one year, E. S. Hamilton, Kankakee; delegate, R. V. Thomas, Manteno; alternate, H. E. Delavergne, Kankakee.

—Dr. John W. H. Pollard, former health officer of Quincy, has been appointed health superintendent for the eleventh district of Illinois. The counties comprise Adams, Hancock, McDonough, Schuyler, Brown, Pike, and Calhoun. He will have headquarters in Quincy but will give up all private practice. Besides his work here as health officer he has had experience in the east and south in health work.

—Cook County Hospital has elaborate building plans under way to increase the capacity of the institution to 3,500 beds at a cost of $2,500,000. The new structures are to include an 8-story children's building, a 7-story men's ward building, a new receiving building and an up-to-date morgue.

Deaths

William L. Athon, Marshall, Ill.; Cleveland University of Medicine and Surgery, 1882; aged 65; died in November.

Christian Martin Berntsen, Chicago; Northwestern University Medical School, Chicago, 1908; member of the Illinois State Medical Society, aged 41; died November 28, of bronchopneumonia, following influenza.

Anthony Doyle, New Canton, Ill.; American Medical College, St. Louis, 1887; aged 93; died, November 5.

Almarian W. Dyer, Butler, Ill.; Starling Medical College, Columbus, Ohio, 1883; aged 72; died, December 2, of carcinoma.

Julius W. Folk, Joliet, Ill.; Chicago Medical College, 1869; Civil War veteran; aged 81; died, November 10, of pneumonia.

John W. Knox, Stewardson, Ill.; Medical College of Ohio, Cincinnati, 1873; served as postmaster, 1872-1885; formerly a druggist; aged 90; died, November 20.

James O. McDowell, Summer, Ill.; Eclectic Medical Institute, Cincinnati, 1874; aged 82; died, November 28, at the Olney (Ill.) Sanatorium.

George W. Schwartz, Summer Hill, Ill.; St. Louis Medical College, 1873; member of the Illinois State Medical Society; aged 78; died, suddenly in November, of cerebral hemorrhage.

Lewis Cass Taylor, Springfield, Ill.; Bellevue Hospital Medical College, New York, 1875; a Fellow, A. M. A.; past president of the Illinois State Medical Society; secretary, state department of registration and education; formerly member of the state board of health; aged 71; died, December 14.

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